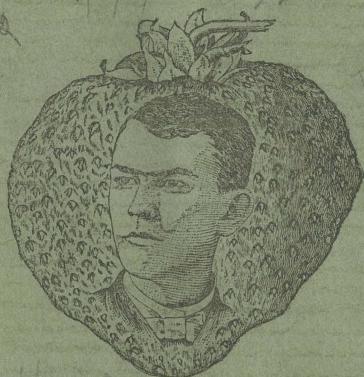


Farmer.

N.Y. Ag. Expt Sta.

F A R M E R

ON THE



STRAWBERRY.

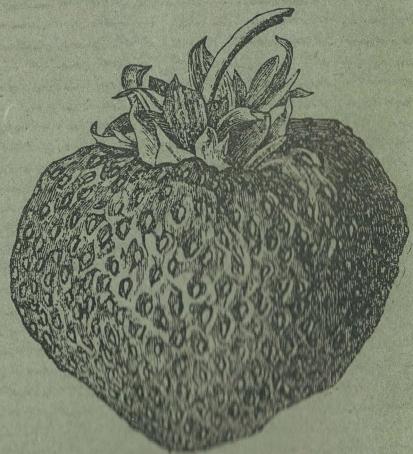
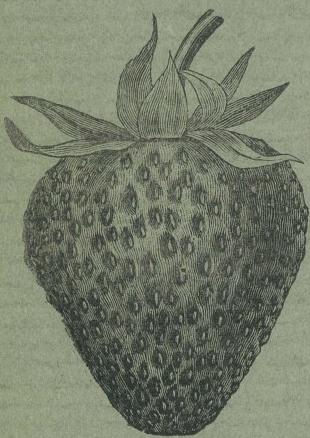


PRICE TWENTY-FIVE CENTS.





The Illustration above represents the Eureka. The one on the left, Warfield; on the right, Bubach. The three best well tested varieties with me.



- : FARMER : -

—ON THE—

STRAWBERRY.

A SERIES OF PAPERS

—ON THE SUBJECT OF—

STRAWBERRY CULTURE.

—WRITTEN BY—

LAWRENCE J. FARMER,

HORTICULTURIST,

AND PROPRIETOR OF

Maplewood Fruit Farm,

Pulaski, N. Y.

DEMOCRAT PRINT, PULASKI, N. Y.
1891.

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INTRODUCTION.

There is nothing new under the sun. I have been engaged in growing strawberries about twelve years. I have studied my business closely and maybe have found out a few things in regard to the culture of this popular fruit that are not known by cultivators generally. It is for this reason that I write this treatise ; hoping in it to give some ideas that can only be obtained by a long and expensive experience. I do not pretend to have originated anything new, but merely to have discovered something not known by people generally. If I descend below the dignity of the usual horticultural writer, you will please excuse me, especially if it prove to be the means of showing you the best and most approved methods. I will pay great attention to details, since I think that herein lies the cause of failure or success in the culture of the strawberry. If I succeed in enlightening anyone, I shall be satisfied; and if I have not made all things perfectly clear, I will be glad to explain still further should you desire to correspond with me. Address

L. J. FARMER, PULASKI, N. Y.

STRAWBERRY CULTURE.

THE LOVE OF FRUITS.

From the time that the child gets big enough to walk till as an old wornout man he topples into the grave, the members of the human family have an almost insane craving for fruits. Whether it is an inherited trait acquired from the wrong doing of our great parents, Adam and Eve, we cannot tell, yet we are sure that the gratifying of this taste for fruits does not bring sorrow and "all our woe," as was the case "in the beginning." On the contrary, those who eat freely of fruits find that they are influential in bringing about a healthful state of both mind and body. Too much cannot be said of the beneficial influence of fruits, when taken freely, on the human body. Most people eat too much meat, especially farmers. Salt pork is the standby. The system becomes clogged up. The farmer not only finds his brain not in working order, but his body also. Recourse is had to powerful cathartics. Patent medicines flourish, and Dr. Hall grows rich. Fruits are a gentle laxative. If people would eat freely of them daily, strawberries, raspberries, blackberries, pears, apples, etc., in their season, there need be no call for Dr. Hall's pamphlet.

Our family have practiced eating largely of small fruits for the last several years, and we have been remarkably free from sickness. In strawberry time we have strawberries on the table at every meal, using 10 or 12 quarts per day. I sometimes make a meal out of strawberries and bread and butter. We never feel quite so well as in the berry season. We are in perfect health, can work like a steer, go ahead and set an example for

the hired man. Then of course the hired men feel better and can do more when they have plenty of berries to eat. Our city cousins come out to spend the summer with us, pale and listless. We send them out into the strawberry bed to fill up. They eat freely of fruits, exercise a little, and go home strong and tough looking as country girls. They carry with them rosy cheeks, light hearts, good appetites and pleasant remembrances of "Plum's" strawberry patch. Thousands of broken down, overworked city people, invalids and others, have been restored to health by eating freely of fruits. But eating green fruit does bring woe to many boys and anxious hours to their mothers. Fruit should be ripe before it is eaten. The sugar in ripe fruit appears as starch in the green, and can be changed to sugar only by the influence of artificial heat, or that of the sun.

DISCOURAGEMENTS.

There are many discouragements that confront the people who desire to grow fruits, especially near the cities and villages. People who would scorn at the idea of stealing other things will steal fruit without troubling their consciences at all. The horticulturist near a town will spend years of work and anxiety to bring to perfection a crop of grapes and pears. Some morning he walks into his garden and finds everything gone. These depredators not only take all the fruit, but destroy the vines and trees in so doing. In their hurry to secure the prize, they do things that would make the grower tremble with rage, could he see them. Boys will snatch off the bunches of grapes, breaking the vines;

FARMER ON THE STRAWBERRY.

climb into the small trees and shake them, maybe injuring them so much that they wont ever bear again. No person can imagine the agony of the owner, when he sees the destructive work, unless he has himself been in the same place.

I hope the time will come when there will be so much fruit grown that people wont have to "coon" it to get what they want. I expect in the near future to have enough grapes, etc., to give the boys a share. I hope they will appreciate the favor and not steal the rest. I read of a gentleman out in Michigan who invited the high school students to eat watermelons. Would this not be an example to follow by some fruit growers who have a surplus?

SMALL FRUITS NOT TROUBLED.

Small fruits are rarely molested except very small patches in thickly settled districts where robins eat them largely. I have had people complain that they could not let the berries ripen, and had to pick them quite green, or the robins would get them all. There is probably no way to prevent them except by using netting or screens. Our large patches of strawberries are never molested by birds; but of the raspberries they do get a good many. To combat the birds we would pick before the fruit is dead ripe. Something to make a constant noise might scare them away, but corn field scarecrows have little effect. Human thieves rarely molest small fruits, since they cannot be gathered to advantage in the dark. A malicious person could destroy your plants and thereby do you much harm, but he could not tell in the dark which berries were ripe and which were not. In all our experience, we never have had any strawberries stolen from the vines that we knew of. We do not take into consideration the berries that have been sampled by visitors who come to see the different varieties in bearing.

A GENTLE HINT.

Right here, let me caution people about "sampling," when visiting a fruit growing friend. The berry grower may have some new kind he wishes to show in full bearing, and so leaves on all the berries. A gentleman in Illinois wrote me how disgusted he was with some people who came to his place and picked off the fruit from a new seedling strawberry he was testing. It is a rule with people to pick the best they can find at such times. Anyone who has been troubled the same way can imagine how this man felt when he got home. Hired help sometimes think they have the privilege to go into their employer's berry patch and pick out the best specimens. They forget that they are paid for their work, and the man who hires them is no more indebted to them than they to him. We once incurred the enmity of a hired laborer by reproving him for going into our strawberry patch, just as the fruit began to ripen, without leave. I expect to get a pounding if he ever catches me out alone.

STRAWBERRY GROWING AS A SIDE ISSUE.

While to make a business of strawberry growing, the person should have a natural taste for it, everybody can grow strawberries as a side issue.

Poor people who have a back yard or a front yard, cannot utilize the space better. Mechanics and all classes, find this true. Strawberries are often called the poor man's berry. Widows left with large families find strawberry culture as a means of sustenance, well adapted to their circumstances. We often see people working in their gardens after sundown. Then is the time to plant out vines, &c., but early morning is a better time to hoe as the weeds will die better. People who work away from 7 to 6 p. m., have to adapt themselves to circumstances.

To the disgruntled old "kickers," and to idle people generally, we would recommend as a panacea, a short turn of exercise with the hoe in a strawberry patch, early every morning.

FOR MERCHANTS.

Of all people who inhabit the earth, there is not a class that puts in more hours, and pays greater attention to business than merchants. From early morn till late at night, he has to be at his store or suffer accordingly a loss of trade. Merchants are not generally good gardeners, yet I know of some who raise each year their little patch of strawberries, and are able to see the difference between fresh picked fruit and that which has stood around the market. Certainly, merchants would enjoy better health if they spent a half hour hoeing strawberry plants each day.

FOR LAWYERS.

There is ample opportunity for the lawyer to engage in strawberry culture. Every young lawyer has to wait years for a paying practice. Instead of spending this time in loafing, etc., he might make money to meet his current expenses by growing strawberries for market. I would risk the chances on such a fellow quicker than I would on one who depended on collecting bad debts and mixing up with every dirty little affair.

Let the young man have a patch of strawberries in the rear of his office or somewhere near town and when a client calls he will know where to find him.

I am quite sure that a client will have faith in a man who is not afraid of hard work. I know of several lawyers engaged in growing strawberries. The experienced, hard-worked lawyer cannot get a better opportunity to study out a line of thought than when bent over a hoe tickling around a strawberry plant. I know that most of the ideas I get, come to me as I am at work, and other people tell me of similar experiences.

FOR MINISTERS.

There is no class of people so well situated for engaging in strawberry culture on a small scale, as clergymen. Nurserymen have many customers among the clergy. A clergyman has to study out and learn his sermon every week. Is there a better opportunity than the time he is engaged in hoeing his garden? Clergymen who are good gardeners make the best preachers. The out door exercise, communion with nature, gives them a strength of mind and body apparent in everything they write or say. A dish of fresh strawberries to a sick brother or sister will convey a greater impression of God's infinite goodness, than a whole sermon of words.

FOR STUDENTS.

Many and varied are the ways used by students to get through academy and college. Some boys peddle papers, popcorn, &c. to get a start. Young men sell milk to the people of Ithaca to pay their way through Cornell University. We paid our expenses while attending school by raising strawberries. Other farmers' sons living near good markets, could do the same. Hire a piece of land of your father and get your sisters to help you, and give them a share. Buy a few plants only at first. In a year they will increase so you can set out a larger bed. Increase your plantations as your knowledge and capital increases. You will be surprised at what you can do. An education obtained by one's own exertion is worth something, because the owner knows how obtained. The time is now past when people sneer at those who earn a living by honest work. A few snips turn up their noses to those who pursue certain lines of work, but the worthy people, the ones whose opinions should be valued, will respect you. There is such a thing as to so carry yourself as to command respect.

FARMER ON THE STRAWBERRY.

FOR DOCTORS.

I do not know as I should advise doctors to go into strawberry culture since a free use of fruits by the people would remove the necessity for medicine. But doctors should be healthy themselves else people won't believe in them. Therefore doctors should grow and eat lots of strawberries.

FOR EDITORS.

Here is a class whose opinions are generally respected. If the editor will but have a nice fruit garden and report his experiments, he cannot help from educating the community to a higher appreciation of fruits. Let him make reports from time to time for the benefit of his readers. The country editor is a magnate. Let him show his farmer friends how they can add both health and enjoyment to themselves and families.

FOR FARMERS.

There is some excuse for other people not growing strawberries but there is no excuse for the farmer. With his broad acres he is not hampered for space. With a large family, much of the expense of picking, &c., may be saved. Raspberries and blackberries ripen during haying and harvest time, but strawberries ripen just before haying, and are gone by July 4th. One can readily see that strawberries may be grown to advantage by the farmer as a special crop. An acre of strawberries often brings in more ready money than a dairy of fifteen cows. Every farmer should have a bed of strawberries for his own use, but every farmer won't have a bed of strawberries, so those who do have one, can sell the surplus to their neighbors.

STRAWBERRIES VERSUS GRAIN.

Two years ago, a man came to me, asking advice in raspberry culture. He owned a place too small to support his family by ordinary farming, therefore

had been hiring farms for the past few years. The last year, after paying expenses, he was \$50.00 behind. He had resolved to raise raspberries on his own place. I advised him not to set only raspberries, but part to strawberries. He finally set one acre of strawberries and two acres of raspberries. On account of unfavorable weather, lack of skill, &c., the raspberries did not do well. But the strawberries made a good growth and did not fail in fruiting time. From the acre were sold \$340 worth of fruit; quite a good showing for one year's experience. It takes the product of a good many cows and many acres of land to come to \$340 at present prices. This man has increased his plantation of berries; next year the raspberries will come into full bearing, and I conclude he will no longer rent farms for raising grain.

The time has come when in nearly all lines of business the profits are in the sweepings, or in that part that was formerly thrown away. The miller makes his profits in the bran that was formerly thrown in the river. Saw-dust is mixed with an inflammable preparation, pressed into bricks, and sold for lighting fires. So in the agricultural business. The farmer finds after feeding grain to cows, hogs or other animals, that the product when sold will not pay expenses, and admit of a fair profit, unless the value of the manure obtained be taken into consideration. I think that there is a tendency among progressive farmers of today to attach too much value to the manure. I do not mean that manure is not valuable, or should not be saved. But notice. If you ask a farmer how much more his pork is worth than the pigs and his barley were before it was fed to them, he will say, "not any more, but then we have the manure." This is all well if the manure is used on crops that bring in ready money. But if used on crops that are valued only by the manure they

make when fed to animals, where is the farmer to get his money? The farmer should grow some crop like strawberries that will be sure to bring in money and at a time when most needed.

STRAWBERRY CULTURE AS A BUSINESS.

While everyone can grow strawberries and make something out of it, the person who makes it a business should be adapted to his work. Above all, he should be fond of it. In other words, love his work. A person to make a business of strawberry culture must have great stick-toitiveness or continuity. He must not be constantly getting into something else. 50 per cent. of the people who go into this business continue only 2 or 3 years. They go in with a rush, like the hop growers. An era of low prices strikes them and they are discouraged. The person who succeeds, is he who pays no attention to the fluctuations in the price but continues to plant about so many berries every year. Maybe his crop for 2 years may not pay anything above expenses, but the third year prices rule high and he makes money. I have never raised a crop of strawberries that did not pay a fair profit above expenses.

If one is to engage in strawberry culture, he should first get a market and then shape everything else so as to cater to the demands of that market. See whether early or late berries are wanted and select varieties accordingly. If a near by market, the grower need pay little attention to firmness of the fruit, but if to be sent a long distance by express, this is an important consideration. Large and attractive berries always bring a premium in every market. There are people who won't pay an extra price for choice fruit, yet they are scarce, and even *they* will pick out the best if all are offered at the same price. There is a large class of people who cannot afford

to give fancy prices for strawberries. Were it not for them, Crescents and other small berries would not pay. Those who make the most money out of strawberries to-day, are those who grow the fancy kinds and have a special market. Such varieties as Jessie, Bubach, Sharpless, Gandy, etc., will sell to the fancy trade in our large cities 10 cents per qt. above ordinary Wilsons and Crescents. Growers in the East do not realize the difference between common and fancy kinds now, for the reason that strawberries of all kinds have sold high for the past few years. If we should get a good crop next year, as good as in 1886, the country would be glutted with Crescents. The question of varieties is a most important one in strawberry culture and will be treated later on.

GROWING STRAWBERRIES FOR MARKET.

FIRST PAPER.

LOCATION. In growing strawberries for market much after-labor may be avoided by selecting a suitable location and soil. In open places unsheltered from the driving winds, plants are often injured in the winter even through a thick mulch. In blossoming time heavy winds will blow away the pollen and thus the blossoms are improperly fertilized. A piece of woods, a row of trees, a high, loose fence, will catch the snow and furnish the protection needed.

Frosts occur more frequently and cause more damage on low ground and places hemmed in all sides by woods. An elevated position, sufficiently open to allow free circulation of the air, which tends to drive away frosts and to assist in the distribution of pollen, is most desirable. Slope has much to do in hastening or retarding the time of ripening of the fruit. A level surface is easier of cultivation, and the berries ripen more evenly. Other things being equal, a southern slope

produces earlier fruit, while a northern exposure produces fruit later.

SOILS. Sandy soils require less skill in handling, and are more easily worked than clay. The ideal soil for strawberry growing is a combination of all soils; sandy loam most nearly approaches that. It always produces a fair crop of extra early berries, which on account of earliness bring high prices. Unless the season be wet the later part of the crop may not pay for harvesting.

Sometimes the roots extend down several feet in search of fertility and moisture, and thus the plants are better able to stand the drouth. At the foot of hills and along small streams may sometimes be found moist, sandy soils that always produce a large crop of medium late fruit of the largest size. Such soil cannot be surpassed for strawberry growing. As sand does not heave, plants may be set at any time, even late in the fall or at open spells in the winter, and thus a better growth secured the next season.

Strawberries grown on sand are better colored, firmer and in proportion to their size, bring better prices in market than those grown on clay or heavy soils. Clay soils retain moisture, and when well under-drained endure the drouth better than sand. It requires considerable experience and skill to know the exact time to work clay. It should never be stirred when too wet, else it will bake into a solid mass, nor when too dry, as it will then turn up in great lumps.

Some clay soils are too heavy for growing strawberries, in fact, fit only for making brick. The value of clay is in proportion to the amount of other soils mixed with it. Clay loam forms a very productive soil, in fact when rightly treated, the largest and most paying crops are grown thereon. A very light freeze will disturb plants on clay, and they should be mulched early and deep,

keeping them covered till growth starts in the spring following.

MUCK. When thoroughly decomposed and incorporated with other soils, muck forms an admirable mixture for strawberry growing. The largest crops of some varieties we ever grew, notably so the old Chas. Downing, were produced on muck mixed with clay. But as muck is only found in low places, one runs a great risk in planting it to strawberries, for in addition to the other reasons given for avoiding low ground, if the season is wet it may be impossible to get on the patch to hoe or to gather the fruit. Better to cart the muck to higher ground and incorporate with other soils. Stony soils have the advantage of being well elevated, thereby facilitating drainage. Being naturally strong, with a judicious use of fertilizers and muscle, a large crop may almost always be secured. Instead of rolling over the stones from year to year, as some people do, the largest ones should be removed each year as the plow brings them to the surface. We have spent hundreds of dollars in picking stones and underdraining a few acres of such land, but are annually repaid with large crops. I believe the small stones improve its value, for when removed the soil becomes cold and clammy, consequently less productive.

PREPARATION OF SOIL AND MANURING. With us the preparation and fertilization of the soil for strawberries begins two years previous to setting out the plants. Taking old meadow land, a heavy coat of manure is applied in the spring, plowed under and the ground planted to corn the first year and potatoes the next. Good cultivation is given and the weeds all destroyed, that the ground may be clean for the strawberries that follow. The frequent cultivation given to these crops prevents the May beetle from laying its eggs in the soil, and also turns up what-

ever white grubs may be in it, when the birds and poultry soon dispatch them.

After the potatoes are dug the land is plowed in the fall and cross-plowed in the spring, when all large stones are dug out and removed. A coat of ashes is now applied and the ground thoroughly harrowed both ways, so as to refine the soil and make the surface level. The last harrowing should be crossways the direction that the rows are to run, so that the mark will show.

We find there is nothing better to secure a good healthy growth of plants than well-rotted barn manure. Ashes increase the quantity of the fruit, make it better colored and firmer. Superphosphates are also valuable. We apply phosphates by sifting on the rows of plants when the leaves are dry, preferring a small application repeated several times, to applying all at one time. If put on when there is dew or rain on the leaves it will burn and injure them. What lodges on the plants is removed by brushing off with a broom. As soon as possible after applying the phosphate it is hoed in.

Fresh horse manure may be applied the year of setting out the plants to heavy clay soils and plowed under, when it tends to warm and liven up the ground.

If manure is applied just before setting out the plants, one should be sure it is free from grubs and weed seeds, or else trouble will follow. We once had a trial plat of new varieties almost ruined by grubs from the rotted manure, applied before setting the plants. Horse manure is more free from grubs than any other.

SECOND PAPER.

The success of strawberry culture depends largely on a proper selection of varieties, and one should be guided somewhat by the demands of his customers. If quality, large size, or mere quantity, is the chief desideratum, then a variety having that particular characteristic de-

veloped to the highest degree should be selected. If for a near market, firmness is secondary; but when shipping long distances, it is most important. Some customers dislike to pay more for large berries, but, if all are offered at the same price, most everybody will take the large ones. A few appreciate quality and are willing to pay for it. This class is not always confined to the rich. Some of our best paying customers are among the mechanics and other working people.

VARIETIES. In order to catch all the trade, and satisfy everybody, we grow several varieties. Customers are supplied according to their wants, and charged proportionately.

Plant growers are often censured for retaining so many varieties on their lists, to confuse the beginner. The fact is, nurserymen would be pleased to discard many varieties, but are unable to do so because of the demands of their customers. Very few varieties do well everywhere, while almost every one gains a local celebrity somewhere.

If a nurseryman plows up his patch of a variety that proves unprofitable with him, he may get an order from [somewhere for those plants the very next day. But for the man who grows strawberries for the fruit alone, four or five varieties are sufficient. We want early, medium and late berries, in order to prolong the season, and get the benefit of the best prices. As an American, I believe in improvement, and therefore test the new varieties as they come out.

The old Crescent and Wilson will answer the purpose till someone brings into market some of the large and attractive varieties like Bubach, Warfield or Jessie. Then things are changed, and the man who neglects to plant these improved varieties will be left behind.

PROCURING PLANTS. The first cost of plants, however great, is small compared to the labor and expense that must be

put upon them afterwards. One should therefore procure the very best plants. Plants taken up with dirt adhering to the roots and set out the same day, cannot fail to live.

If you can grow them yourself or procure them from a neighbor, the results will be better than when the plants are procured from a distance. You had better pay the neighbor \$5 per thousand for new-bed plants than to take plants as a gift from his old bed. Plants from old beds are lacking in vitality. They will not grow so well nor produce so much fruit. If the practice of setting plants from old beds is continued from year to year, the variety will continue to deteriorate and finally run out. Take, for instance, the Wilson; its productiveness used to be a wonder. Being a slow runner, the rows spread only wide enough for fruiting. Most growers not liking to disturb the new fruiting beds, have taken plants to set new plantations from their old beds that have fruited once. The Wilson is not what it used to be, although valuable in some favorable locations where it has been less abused. Had it been a more rampant grower like the Crescent, plants from old beds would have been set more rarely; and it would have continued in popularity longer. Some growers saw the error before too late, and have avoided old plants.

Plants from old beds are often badly mixed. When Wilsons are set with Crescents, the latter, being more vigorous, will run into the Wilson rows, and finally crowd them all out.

An inexperienced person getting plants from such a bed would be almost sure to get only Crescents, and thus have only his labor for his pains, as the Crescent produces only "buttons" when planted alone.

In sending to a nurseryman for plants, insist on getting strong, well-rooted plants, grown on beds that have been set

the year before and never borne fruit.

The plants should be taken up carefully with all the roots adhering, and tied in bunches of 25 or 50, depending on the size, some varieties being twice as large as others. The smaller the bunches, the better they keep when packed. Plants sent by mail should have their roots covered with damp moss, then wrapped in oiled paper and strong manilla. When packed in plenty of moss, leaving the leaves exposed to the air, plants often travel thousands of miles by mail, keeping fresh a week to ten days, according to the weather. As the postage on plants is now only eight cents a pound, nurserymen can be more liberal in the use of moss and in the size of plants they send. It is therefore one of the cheapest ways of procuring plants, especially in small quantities and where the distance is great. Plants by express should be packed in light crates, the bunches separated by layers of damp moss, with roots interlacing, and tops exposed to the air. Packed thus they often keep fresh for several weeks. Early in spring or late in autumn plants may be sent short distances by fast freight on direct lines, and at a great saving in transportation charges. But it is not safe to send long distances when they have to be transferred several times, as there is often great delay, and the railroad companies take no responsibility.

CARE OF PLANTS ON RECEIPT. As soon as possible after taking plants from the office, they should be opened and cared for. Dip the roots in water and cover with wet moss. If not ready to set, the plants may be heeled-in in a shady place. Break open the bunches and spread out so that the roots will come in contact with the soil. Water occasionally and keep from wind and sun. When plants are received early in the spring from the south, they may be kept till warm weather by burying in a snow bank. Take out

the bunches and puddle the roots in mud of the consistency of cream; repack them, and placing them on the ground at the bottom of a snow bank cover over with snow, and on this place sawdust or straw to prevent rapid melting. Treated thus they will keep as long as the snow lasts.

TIME OF SETTING. Strawberry plants may be set every month in the year, and a crop secured the following season. The usual time, however, at the north is during April and May. On sandy soils, and at the south, plantings are made in the autumn and thus a better growth secured the following year.

The earlier plants are set in the spring, the better growth secured provided everything is favorable. The strawberry plant has great vitality, and during favorable weather I have known plants to strike root and grow where the workmen had dropped them by mistake.

The most desirable time to set is when the soil is moist (not muddy) and the sky cloudy. I have known plants set in June, when the ground was moist and the weather favorable, to do better than those set two months earlier while the soil was dry. Plants set late and the ground stirred soon afterwards and frequently, will do better than those planted early, but allowed to take care of themselves for a month or till spring's work is all done.

MARKING THE GROUND AND PREPARING PLANTS. There are various modes of marking strawberry ground; but anyway is good that brings about the desired result—straight rows. Some people plow a furrow and set the plants up against the land side, others use a line for marking. On our stony soil we use a two-toothed peg marker with thills, to be drawn by a horse. One man leads the horse while another guides the marker. It is very important where horse power is used in cultivation to have the rows straight, as then the cultivator may be

run close to the plants. The first row may be staked off and marked with the foot. A space should be left on the ends of the rows for turning around on with the horse. Have the rows run the longest way, and thus save time in turning around. We make the rows $3\frac{1}{2}$ feet apart for rapid runners with plants one foot apart in the row.

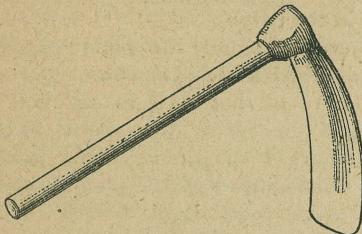
Before setting out, the plants should have all dead leaves and runners removed, and the roots shortened to six inches. If late in the spring it is better to remove a part of the green leaves, as too much foliage draws on the plants' vitality before the roots begin to work. The runners bother in hoeing and also in setting. The more trash on the plants, the more bother. The plants packed in a crate in damp moss may be brought to the field and placed in the shade till wanted.

If the weather is cloudy a boy may drop the plants in advance of the man who sets them, and much time be saved. But if it be cold and windy, the plants should be placed in a pan with water in the bottom, and each plant taken out only as it is wanted. If plants are exposed to the hot sun or cold driving winds, they lose their vitality in a few moments and are worthless.

Plants kept long in moss, like fruits in cold storage, soon spoil, and if not used quickly on being exposed, their value is about gone.

SETTING STRAWBERRIES. For setting plants we use a tool shaped somewhat like an adz or grub hoe. The blade is of steel ten inches long and four inches wide. It is made thin and curved inwards. At the top is a hole for a handle, which is one foot long. It may be made by the local blacksmith and costs \$1.00. We call this tool a "Strawberry Setter," but it may be used in setting vegetable plants or heeling in raspberry plants. Grasping the setter in the right hand the

workmen strike the blade into the soil about seven inches and then withdraw it. As the setter is withdrawn, and before the soil rattles back into the hole, a plant is inserted back of the setter. The soil is pushed up to and around the plant by a forward movement of the setter, and thus the work is accomplished.



Plants put out this way have the roots set a little obliquely, but seem to do as well as when put down straight. The soil comes in close contact with the roots, and there is no cavity left around them. The earth is left loose, and not packed hard as where a dibble or trowel is used. One of these tools will last a life time, and we used to spoil two or three trowels every year. The general appearance of this strawberry setter is shown in illustration on this page.

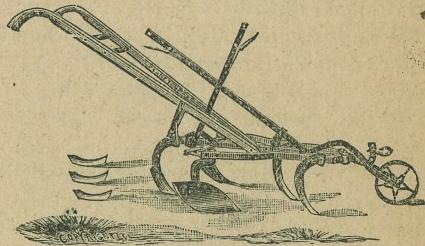
Care should be taken that the crown of the plant be put even with the surface. If below the surface the plants will rot in a wet season; if above, they will dry up in a dry season.

THIRD PAPER.

HOEING STRAWBERRIES. Not less than a week after strawberries are set, they should be stirred with a rake or hoe, and the operation continued throughout the season as often as possible. This early and frequent stirring destroys the weeds that are sprouting, and also breaks the crust formed by the dews and rain. This crust, unless frequently broken, prevents the runners rooting readily, and also the air from circulating to the roots. The free access of air to the roots is most im-

portant as is shown by contrast between plants grown where the soil is loose and porous, and when it is submerged with water and packed down hard. Plants won't thrive on the latter soil.

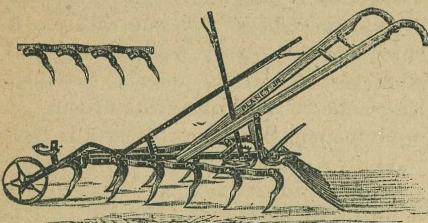
If heavy rains occur to pack down the soil around the plants, it should be stirred deeply. In no other way can the plants be made to grow. As a rule strawberries should be hoed shallow in dry weather and deeply in wet weather. When soil is left to itself for a time, the moisture from the earth passes off into the air. By stirring the soil frequently, the pores are broken off and a mulch is formed. The moisture instead of passing off into the atmosphere, stops just at the stirred layer and goes to the benefit of the plant. Soil will dry out just as deep as it is stirred. This is why we hoe deeply in wet weather.



PLANET, JR., WITH WINGS OR SCRAPERS.

HORSE CULTIVATION. Like other field crops, were it not for the horse, strawberry growing would be a drudgery indeed. I think growers do not as a rule practice economy in horse cultivation. We should be more particular with the horse and cultivator. The horse should be steady and taught to walk straight, through the row. I have used most kinds of cultivators, but have discarded all for the Planet, Jr. It seems ridiculous after running so close to the rows as to peel the leaves off with the wings of a Planet Jr. to glance over the fence and see a neighbor cultivating the centre of a row with one of those broad-toothed cultiva-

tors that came over in the Mayflower. Do his best, he will have over a foot to stir up with the hoe, while with the wings and fine teeth on a Planet Jr., the rows may be narrowed to four inches.



PLANET, JR., WITH SMALL TEETH.

HOW TO CULTIVATE. In about a week after plants are set, the cultivator is started. We cultivate the centre of the row thoroughly, using wide teeth. The wings are now put on, arranging so as to cut away from the row. We spread the cultivator about $2\frac{1}{2}$ feet and use but one wing, the left one. The wing is so arranged as to scrape away the weeds and yet allow the cultivator to be guided easily. The fine teeth guide easier and should be used when the wings are on. After the wings have performed their service, they should be taken off and the fine teeth put on. Both sides of the rows are now stirred close up, and the plants are ready for hoeing. The advantages of using fine teeth are these—you can run more closely to the row without throwing dirt or stones on the plants, and can also stir the soil deeply around the plants, thereby disturbing and possibly destroying any worms or insects that may be at work on the roots.

HOEING.

In hoeing strawberries for the first time, the weeds are cut out between and around the plants and as much earth put around the plants as was taken away. If a plant be set too deeply or if heavy rains have caused earth to settle over the crown, it should be fingered out; so the crown will be free. If the plant be set

too shallow, so that its roots show, more earth should be drawn around it. If the soil be hard, it should be stirred deeply and mellowed up. If any blossoms or berries remain on the plants they should be removed as it taxes the plants vitality. No runners will start till quite late, and the plants will often succumb if allowed to fruit the first year. Strawberries should be hoed and cultivated as often as possible before the runners start to grow. By frequent stirring, the weed seeds are brought to the surface and then they sprout and are destroyed. It is easier to hoe four times before the runners start than once afterwards.

When the runners begin to grow, the first ones should be removed to give stockiness to the plants. If the first runner is left on, it will draw the life from the parent plant so as to prevent its sending out other runners. Whichever side of the row this runner happens to strike root will be covered with plants and the other side vacant; and thus a very uneven growth is secured. By cutting off the first runner or two, the plant becomes larger and soon sends out several large runners, all at once, which may be layered on both sides and make an even stand of plants. In hoeing strawberries after the runners start, if there be several runners and only a few new plants rooted, we turn all the runners over on one side, while the other side is weeded and hoed. The runners are now all turned to the side that has been hoed while the other side is treated the same. Earth should be drawn around the plant to replace that which has been scraped away with the hoe in removing the fine weeds. One should be very careful that all the fine weeds be cut away, for in dry weather they are sure to grow through, if covered up. Strawberries may be hoed after the runners have rooted too strongly to be disturbed, by the following method:—The ground is cultivated deeply be-

tween the rows so as to give plenty of loose soil. All the large weeds are pulled out. The earth is now drawn up around the plants, covering the small weeds and runners. This not only retards the weeds, sometimes smothering them, but also insures the young runners rooting readily. They will root and grow up through an inch of soil. This covering of the runners with soil is the safest and most rapid way of securing a good growth of plants even in dry weather.

In pulling large weeds around a strawberry plant, the plant should be held down with one hand, while the weed is pulled out with the other. Large grass weeds may be split in pulling and with less danger to the strawberry plant. I have great difficulty in getting men to pull the weeds properly around the plants, and also to layer the runners. They should be set in, parallel to the rows and those about to root, put in place and held down with a stone or pressed into the soil. A runner that has once rooted will never root again, unless it is pressed down with a stone or covered with soil.

The cultivator should be kept going continually; at least once a week so long as growth continues, to keep the soil mellow and turn the runners that start across the path. As the runners spread, the cultivator should be narrowed up and run only one way in the row.

SUMMER FERTILIZATION. There is nothing that will pay the grower so well next to thorough cultivation, as liberal manuring. I think that strawberries should be given an application of some quick-acting fertilizer such as nitrate of soda, superphosphate or guano, soon after they are set out, to give them a nice send-off. At this time, they are very feeble and undecided whether to grow or die. Plants never stand still. They either grow or go back. The weather may be too cold for growth, the soil either too

wet or too dry. Some tonic manure applied just as they are to start growth, may ensure their safety. The fertilizer may be scattered along the row and hoed in around the plants. The plants will need another dressing of superphosphate soon as they begin to run nicely. By this time the leaves will be large, and whatever fertilizer lodges on them, should be brushed off with a broom. In applying commercial fertilizer it is safest to apply a small quantity several times rather than all at one time. If the ground is weedy, it should be scattered on after hoeing, for in cutting away the weeds, the fertilizer will be drawn from the plants, where it cannot benefit them. Otherwise put it on before the plants are hoed. We put on about 300 lbs. superphosphate to the acre at one application. This is about 10 quarts to 350 feet of row. The largest and finest crops of strawberries grown hereabout were produced from rows that had been treated to barn manure and superphosphate about September 1st. The rains wash it down to the roots, very little is lost and its value goes to forming the fruiting crowns and new plants. If one has a manure spreader it may be used here to advantage, scattering the manure on to the rows, in among the plants.

FOURTH PAPER.

WINTER DRAINAGE. As winter approaches precaution should be taken to prevent the plants being heaved by frost. The bed should be so arranged that the surface water runs off. If water stands about plants they are sure to be thrown out and killed. We put the cultivator between each row and loosen up the soil, then open a furrow with a corn plow. The water will settle into the furrow and pass off readily. It is quite necessary to do this on heavy soils, especially in such seasons as we have recently had.

MULCH. Now is the time to haul out the straw and spread in a vacant lot where it may be turned over several times, allowing the weed seeds to fall out. Encourage the poultry to pick it over. Whatever seeds may be left in, will grow and be a bother next year. This is a serious objection in using horse manure for mulching strawberries. We employ threshing machines that separate the chaff from the straw, and then have no trouble with weed seeds.

MATERIALS. The best mulching material to be had is marsh hay on account of its freedom from noxious seeds. If removed early in spring and stacked, it may be kept two or three years. Rye straw answers the purpose as well but is expensive. Last fall we mulched with buckwheat straw, after having all the chaff removed. We think the chaff rots and injures the crowns. But plants never wintered better than those we covered with buckwheat straw. On wet soils that heave badly, there is no better covering than light strawy manure. It is the only reliable covering for fall set plants. If plants are plowed under after bearing once, horse manure is a good material for mulching. It not only protects the plants in the winter, but enriches the soil, giving them a fine send off early next spring. Nature's covering, snow, should not be overlooked. Indeed, in some places, it is all that is necessary, coming on early before the plants have been injured, and remaining till after freezing and thawing is over in the spring. Usually it will pay to scatter something over the surface, such as evergreen boughs, or to build fences of rails or boards in order to catch and retain the snow. Small patches in the garden may be covered with tomato, potato, pea vines, etc., or with leaves held in place by cornstalks.

HOW AND WHEN TO APPLY MULCH. The best time to cover strawberries is

about Dec. 1st. The mulch should be drawn and scattered over the patch and afterwards spread evenly over the surface about two inches thick, just so as to hide the plants. It is not necessary to wait till the ground freezes up to apply the mulch. It won't hurt the plants if put on long before the ground freezes, provided there is no warm weather to smother them. We experimented last year in view of finding the best time to apply mulch. The plants that were covered early, before the ground froze, wintered best. But perhaps this was because the straw had more time to settle, and was little disturbed by the driving winds of January. Straw that was put on after the ground froze was blown off several times, and the plants were of course injured. Straw might be held in place by throwing a little earth on it.

PROTECTION VS. FREE EXPOSURE. Strawberries are not usually covered on sandy soils, because such do not heave. We do not think that mulch should be put on merely to prevent heaving. Plants exposed to the driving winds of winter, and to the alternate freezing and thawing that unprotected soil undergoes, must be impaired in vitality. They may not be killed outright, yet be so enfeebled that they will not bear a profitable and satisfactory crop.

FIFTH PAPER.

SECOND FRUITING. We never fail in having a crop of strawberries on the new runners during August and September. This peculiarity, however, is confined to only a few varieties. We never have seen any fruit in the autumn on a Crescent, Wilson or Bubach. The Bidwell, Parry and Jessie, however, have developed this characteristic to quite an extent, producing fruit as large and fine-flavored as in the spring. I think it is brought about by the young plant receiving some check in its growth. We notice fruit in greater

abundance on plants that have not yet struck root. The young runner being prevented from rooting, readily contracts its energies to making fruit, same as a black raspberry cane that was not put down at the proper time to root, will sometimes bear fruit on the tip ends late in the fall.

VISITING NEIGHBORING FRUIT GROWERS. Any one may read all the horticultural books and papers he can get, and still not be familiar with the latest ideas. We should visit each other and learn each other's methods. There is no end to what we can learn by interchange of ideas.

I am often surprised at the new ideas my neighbors study out, and I lose no time in adopting them myself if practicable.

RIDGE VS. LEVEL CULTURE. Almost every writer recommends level culture for Strawberries. I have tried both ways and am decidedly in favor of growing them on a slight ridge. It is especially desirable in a rainy season. Our rule has been to set the plants on a level, and at each hoeing draw earth up around and among the plants. By fall the matted row of plants is on quite a ridge, with a depression between each row for the water to pass off. Last spring the plants were set out on a level as usual. It was so wet for months afterwards that water stood around the plants, and many rotted and died. Had each row been on a slight ridge, say two inches, the surface water would have run off and the plants done nicely. I know this by observing the rows that were in the center of the lands, higher than the rest. On these rows plants have made double the growth, and look healthier too. Last September I saw a patch of strawberries on a piece of ground bordering on a swamp, that were remarkably vigorous. They had made a better growth than on our well-drained upland. That soil was wet and boggy, and had nothing but surface drainage;

but they were skillfully managed. Each land was rounded up into a nice bed, with deep dead furrows between for main ditches. The rows run crossways the lands, and between each row was a depression, so that no water could stand around the plants. I could hardly believe that plants set in June would make such a growth.

The ridge method has many advantages. The ground dries off quickly after a rain, hence plants can be cultivated and hoed sooner. The plants are less liable to be destroyed by heaving in early spring. When water stands around the plants in winter they are sure to be destroyed by alternate freezing and thawing. I am inclined to think that plants standing on a ridge are less liable to suffer from drouth. They root deeper, going down to moisture. If you pull up a plant on wet soil the roots are found to have spread over the surface, not rooting deeply. Should dry weather come during fruiting season, these plants will wither and fail in producing fruit.

WHITE GRUBS. Strawberry growers were never troubled more with white grubs than they were in the season of 1890. These grubs will hatch out next spring and we may look for an extra large supply of May beetles or June bugs. There have been no May bugs the past two years, and I take it that next year we won't be troubled with white grubs. There need be no caution used in setting Strawberries on any soil next season. Even green sward, usually full of grubs, will do. The workings of the white grub are peculiar. It don't seem to be limited to any particular soil or locality. It thrives everywhere. E. P. Roe compared the white grub to that element in society which has just ambition enough to do harm, but not enough to do any good. Although the white grub is very destructive to pastures, to the potato crop, and to raspberries, eat-

ing off the tips that are put down to root, its worst work of destruction is among strawberries. We find them more abundant in old strawberry beds than anywhere else, and for this reason it is not wise to fruit a patch more than one year. The beetle lays its eggs in uncultivated soil. The eggs hatch into grubs, which do little damage till the second year, when they obtain full size. They begin their destructive work about the time strawberries begin to run nicely, say middle of July, and continue till cold weather comes on, when they pass into the pupæ or chrysalis state, preparatory to coming out next spring a full-fledged June bug. With all its stupidity the white grub is no fool. We watched it closely the past summer, and find that it don't like too much water, preferring to operate in the well-drained knolls. It got most of its work in during the short drouth we had in August. As the wet weather came on later, we didn't see much of it.

The only way to fight white grubs after once the plants are set out, is to dig out each one as the plant is found wilted in the sun. This grub, like others of "dark deeds," performs its work during the night, cutting off the roots just below the surface. If more forethought were used, there need be no such damage done by this enemy. Hogs, moles and skunks are very fond of them. I have seen fields entirely turned over by hogs in rooting for grubs. Would it not pay strawberry growers to have a corral of hogs or skunks on the ground that is to be set to strawberries, and thus save themselves time, money and anxiety? I wish I could have kept 100 moles in my strawberry bed the past season. Just as the grubs started to work, I noticed that a mole had followed a few rows for several rods in quest of grubs. Although the furrow was made close up to them not a plant was disturbed. But this mole

was stopped short in his good work by our pet cat, who doesn't tolerate anything in the rodent line.

L. J. F., in Popular Gardening.

SPRING CARE OF STRAWBERRIES.

Mulch that has been put on plants to protect them through the winter will pack together and settle down close to the plants. In the spring as soon as frost is out of the ground and warm weather comes on, the straw should be removed. About the time that growth starts is the proper time. If left on too late, especially if the weather be hot, the plants are liable to be smothered. In some seasons when the weather is favorable, not too wet or too hot, the straw may be left on quite late. This tends to keep back the growth and retard the time of ripening. In dry seasons it is advisable to leave the straw on the plants, merely shaking it up, when they will grow up through it. Straw left on not only retards the time of ripening and acts as a mulch, keeping the soil moist, but also chokes and keeps down any annual weeds that might come up.

SPRING CULTIVATION.

Strawberry growers do not as a rule practice spring cultivation. Yet, I am convinced that it will pay. I was led to believe this by noting how nicely some plants bore that had been forked between the rows in taking up plants for resetting. One year our Crescent rows spread 4 ft. wide. We narrowed down the rows till only 1 ft. wide, and yet they bore as great a bulk and much finer berries than the rows 4 ft. wide right beside them. I will say, however, that the soil was well mulched between the rows. When plants are dug from rows and no straw put around the remaining patches the soil will dry out and very few berries will be secured. In preparing a piece of strawberries for spring cultivation the

FARMER ON THE STRAWBERRY.

straw should be first removed, so that it won't clog the cultivator teeth. The following is an economical plan:—Begin on one side of the field and remove the straw from the first row and place it on the land adjoining. Cultivate this row thoroughly and rake the straw from the second row onto this first row after it has been cultivated. Continue this plan throughout the whole field. Subsoil plows or cultivators that dig deep, but do not turn over the soil much, are best for cultivating strawberries in the spring. Unless spring cultivation can be given very early, as soon as the soil is dry enough to work, it will do more harm than good. As soon as the soil will work up nicely get onto your plantation and do this quick as possible and get the straw on before the soil has time to dry out. If mulch is put on in the spring when the soil is dry, the soil will remain dry throughout the season unless very heavy rains occur. Some people cultivate strawberries deep very early in the spring and afterwards run the cultivator once or twice a week, quite shallow, up to the time of ripening. This shallow cultivation makes a mulch of the surface soil and keeps the plants growing nicely. In hoeing strawberries in the spring of the bearing year, we would merely skim along the surface, cutting off the weeds and not disturbing the soil much. Deep digging of the soil tends to destroy many of the feeding roots and thereby shortens the crop. Strawberries should not be hoed during the blossoming time as it causes the blossoms to blast. During blossoming time do not either hoe or cultivate among any small fruits; leave them to the winds and honey bees.

CARE OF RUNNERS.

About the time that the fruit begins to ripen, the plants will send out an immense number of runners. These only weaken the plant, causing it to bear less fruit. In small garden patches, or when

highest culture is given, it will pay to cut them off with shears. But in large fields merely placing plenty of straw between the rows where the runners can run among it and thereby escape being trodden upon so much by the pickers, will prove the most practicable plan I know of.

HARVESTING STRAWBERRIES.

PROCURING PICKERS.

Strawberry pickers obtained around home prove the best and most satisfactory. The grower knows who he is dealing with and the pickers do also. In places where but few strawberries are grown, the supply of home pickers is generally greater than the demand. Farmers' wives and daughters often may be obtained and make trustworthy pickers always. Even little girls and boys if properly superintended will make good pickers, but too much dependence should not be placed on children in general, as they cannot always stand a hard pull at strawberry picking. I have seen little boys and girls pick all day long for several weeks, keeping along with grown up women, but such cases are rare. It is not even best for the children to work so hard when young. Children usually get tired about noon and want to go home. It is best to let them go. Have enough to pick the bed all over in half a day. Pickers obtained from a distance are usually professional pickers. Like hop pickers, they make it a business. A motley crowd is this gang. They represent every phase of character, every desire that pervades mortals. Some go for their health, some for a lark, some to get a partner for life, and some for the basest of reasons. I am told that gangs of pickers start in Louisiana when first the berries begin to ripen there, and traverse the whole Mississippi valley northwards to Minnesota, moving as fast as the ber-

ries ripen. In Oswego Co., N. Y., where strawberries are grown extensively, pickers are obtained from the cities and country places remote from the railroad where strawberries are not grown. They board in the farmer's family generally. The larger growers hire cooks through the season and run sort of a hotel. Where a lot of pickers are congregated together they often take advantage of the owner of the place. I have heard of instances where the pickers took entire possession of the house, turning everything upside down, and raising a rumpus generally. The farmer goes to bed and jumps into a nicely arranged bunch of thistles. Things go from bad to worse, till the man hardly knows whether he is proprietor or not. The best and only way to deal with berry pickers is to let them know what is expected at once as soon as they are hired. Be firm and do not waver. Have a set of printed rules and adhere to them closely. If you ever give an inch they will take a rod.

It is difficult to draft a set of rules applicable to all berry pickers. You cannot do it. You will have to study their disposition and work them accordingly. High pressure is always safer than low. Yet the pressure may be too high.

STRIKES.

I cannot imagine a more helpless individual than a strawberry grower left without pickers. We have never been troubled with strikes. They are liable to come in the busiest part of the season, if at all. We pay our pickers a good price and they earn good wages. We treat them civilly and there is the utmost good feeling between them and us. We give no occasion for strikes. A uniform fair price should be agreed upon between the growers in the locality, to pay the pickers, and every grower should pay the same. Combinations among the growers to force the price down to a point that

there is no remuneration to the pickers, is unfair and will tend only to provoke strikes. If I were paying the usual price for picking berries and my pickers struck for higher wages I would let the berries rot before I would accede to their demands. For I would know that the pickers would expect me to give in, always. When pickers strike, the best way is to get others, even if it costs you all you get out of the berries.

SUPERINTENDENTS.

The best superintendent that can be had for tending a berry patch in the picking season is the proprietor himself. Of course a faithful foreman is the next best. A man who has charge of berry pickers must understand all about his business. He must know human nature and be able to adapt himself to its different phases. He must be interested in the business more than ordinary hired men. I once hired a man to tend my pickers. He was a good fellow but there was never such dissatisfaction among the pickers. Some said he credited his wife and her friends with more than they picked, and that he did not make them pick their baskets so full as he did the other pickers. We did not credit the stories, yet they had the same effect, every picker was dissatisfied. Men are not only liable to be partial to their wives but to other women, especially unmarried men. Indeed, it is a hard thing to be entirely impartial, some pickers do so well, some do so poorly. Praising the good ones sometimes discourages the poorer ones.

HOW TO PICK STRAWBERRIES.

When the pickers arrive, each is given a row which he must pick clean before leaving it. The pickers and the rows also, should be numbered in large plantations that everything may be run in a more systematic manner. The picker takes along with him a handy or picking

stand, a tally card and a card corresponding to the number of the row he is to pick. The bookkeeper keeps a record of the rows each picker has picked and thus careless and dishonest pickers are identified. It is the duty of the superintendent to see that the pickers keep to their rows, and that they pick the berries clean. No green or rotten ones should be allowed to be put in. One of the surest proofs of an unfaithful picker is to detect green or rotten fruit or leaves in the basket of berries. We tell the pickers to eat or throw away any soft berries that they may find. Sometimes if there be an unusual number of them, we give the picker an extra basket in which to put the soft ones. These berries may be given to the pickers or used for your own family. We never have been troubled much by pickers eating strawberries. They may eat largely the first day, but after that they have no appetite for them, the reason probably being that they eat more than they should the first day; or may be for the same reason that cooks do not like their own victuals. The pickers should be made to fill the baskets full. They should be heaping full as the basket has to be shaken down before it is placed in the crate. There is no one thing that will cause more trouble than trying to make a picker give better measure. I generally explain to them why we have to fill the baskets. Yet when I have been in charge myself, I have had pickers leave the field simply because I wanted them to give honest measure.

Strawberries should be pinched off; leaving a half inch of stem on each berry. This work is done with the nails, commonly, but now we see that a genius down in Arkansas has invented a machine to take the place of the finger nails. The reason for picking this way is because the berries are not injured, and then the market calls for berries picked thus. In

eating berries I suppose the berry is taken up by the stem and dipped into sugar before being placed into the mouth. In picking strawberries by the old way of snapping them off, the picker touched the berry and necessarily bruised it. Of course the fruit would not stand up so well when shipped to market. The extra space taken up by the hull will make up for the loss of time taken in picking. Above all, do not allow the pickers to hull the berries when they are picking them. If hulled, the berry will bleed and mush, and tend to spoil the whole basket. Hulled berries also tend to spoil the sale of the berries when placed on top of the basket. I think berries should be picked just as soon as they turn red. If left till soft their value is not only lessened but the drain on the plant is great. It takes little fertility out of the soil when picked green because the seeds have not developed. Ripening the seeds is what causes such a drain on the soil.

KEEPING TALLY WITH PICKERS.

There are various ways of doing this. When the grower has only a few pickers he can keep account in a book, merely setting down the amount each picker has picked each day. In large plantations another method must be employed. Most large growers use checks like milk tickets. When a picker has picked a 4 qt. handy of berries and delivered them, he is given a card standing for the number of quarts picked. This card has the growers name on it, and is good for the amount to anybody who may get it. If lost or stolen the thief or finder can present it to the berry grower and get his money. The person who gives out the checks is also liable to drop them and dishonest pickers pick them up and get the money on them. From these and other reasons growers suffer great loss by using checks. A genius in Oswego coun-

ty has discovered a new Tally System that obviates all this trouble. We will here describe it:

Simpson's Tally System consists of a common railroad punch and cards, shaped like tags, checked off into four rows of little square spaces. There are two sets of cards to accommodate both those who use 4 qt. and 6 qt. picking stands or handles. The "4 qt." cards have two rows of 4 qt. spaces and two rows of 1 qt. The "6 qt." cards have one row 6 qt., one row 2 qt. and two rows 1 qt. spaces, amounting in all, like the "4 qt." cards, to 100 qts.

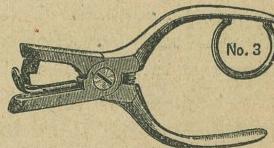
Like all tags, these cards have a hole for passing a string through and between this hole and the rows of squares is a place for writing the name of the picker. The proprietor writes his own name on the back and thus there can be no cheating. If lost, the cards are worthless except to the rightful owner, as they read, "Not Transferable." I can see no defect in this system of keeping Tally, and I do not wonder at the great popularity it has acquired already, wherever known. I receive letters like the following from B. F. Smith, of Lawrence, Kansas:

S. B. McMillan

“L. J. FARMER—Dear Sir:—S. B. McMillan, of Ohio, informed me recently that you had a good Tally System that was ahead of the old check or quart ticket. Should be pleased to have any light you can give or sell me. The past several years I have been sorely tried with the problem of berry tickets, and the matter of boys stealing from industrious berry pickers, by playing dice and other trickery. I get my berries picked for $1\frac{1}{2}$ c. per quart and my tickets read, “Good for $1\frac{1}{2}$ cents.” Some boys will pick from 15 to 20 qts., get their tickets and leave the field. But before they go, they will induce some boy who may have 100 or, 200 to go, and under a shade on the way home, they play dice. Thus good pickers are kept from work in a busy time and parents are after me to know why their boys do not pick more, etc. You probably have had the experience. Last year was the first of the kind I ever had.

and I am determined to break it up if possible."

M
NOT TRANSFERABLE.



SIMPSON'S TALLY SYSTEM.

When the man who carries the berries takes them from the pickers, he punches to correspond with the berries picked; if 4 qts. a hole in a "4 qt." space, &c. When the spaces are all punched out the picker is given another card. Each card when full is worth \$1.50.

We pay our pickers only at the close of the picking season. This has proved the most satisfactory time for us. The picker knows that he has a certain amount of money coming to him all the while, and he is more liable to try to do better than as though he received and spent his

money every day. This rule will apply not only to berry pickers but to all kinds of employes we have around. If they have something coming they will be more liable to be interested, and make a greater effort to please. In localities where berry pickers are very plenty, and poor as well, it may be better to pay off once a day. We would seek to compromise and pay them once a week. Along at the last, pickers are apt to get tired and discouraged and want to quit. If they are all paid up of course you cannot compel them to stay. It sometimes happens that the very last berries pay the best. We pay our pickers by checks on our local bank. This avoids all mistakes in changing money in the busy time, and when the picker signs the check in order to get his money he makes it a voucher or receipt to us.

PACKING STRAWBERRIES.

When the berries are taken from the pickers, they are carried to the packing house where they are properly graded and placed in the crates. Every variety and grade of berries should be in a separate crate by itself and properly marked. Do not mix several varieties in the same crate if it can be helped. Have every crate of a uniform grade. The person having charge of the grading, takes the berries from the handy and places them on the bench where all may be on a level and more easily fixed. Each basket before being placed in the crate is shaken a little that any cavity may be filled. The top is now nicely leveled off and the basket placed in the crate. Some people turn the hulls down and points up to give the top of the basket a better appearance. We do not think this will pay for the extra labor it costs. It may pay to work a large berry into each corner, but it will not do to put the large berries on top and the small ones in the bottom. People buy with the eye, but

when the retailer turns out the basket of berries, and the bottom of the basket is filled with small, inferior berries, they will spot the grower who puts up such fruit. I believe in having the top fully as good as the bottom, for the reasons stated above, that the people buy largely with the eyes. If the crate has to be made up of several varieties or grades, I would arrange them in tiers, rather than put the small ones in the bottom and the large ones on the top layer. Mark on the inside of the cover what each crate contains. The number of quarts of each variety and the grade of each. As a rule I do not think it will pay to sort berries. When picked little and big of the same kind in the same basket, they sell better than when sorted and made into two grades. That is, the best grade and the poorest grade when sold separately, will not bring as much money as when both grades are in the same basket and sold together. Please to notice that I would not put different varieties in the same basket, especially if the one is dark and the other light colored. When the crate is closed the cover should set down close on to the tops of the rims of the baskets that there may be no shaking around of the baskets in the crate. Berries are often very much injured by being shaken around in the crates when the baskets do not fit closely together. Especially is this true when they have to be shipped long distances. I have seen baskets completely turned bottom side up in loose crates. Strawberries should be drawn to market only in spring wagons. It hurts a crate of berries more to draw it one mile on a lumber wagon with no springs, than ten miles on a light spring wagon. If your springs are good you can drive as fast as possible if the roads are good. Be careful though in going over stony places. No class will appreciate and be benefitted more by better country roads than the berry grower. Your wagon

should be loaded to its full capacity. I find that when we load heavy that the berries are never shaken up, while if we have but one crate in and drive fast they are sure to be shaken up.

MARKETS.

The best market is a home market if you can get it. After all that has been written and said about strawberry culture there are thousands of places almost wholly supplied with strawberries that are shipped in from other places. If you can locate in such a place—better still if you already live there—you can create a bonanza for yourself. Arrange with the groceryman to handle your berries, or if you can hire a boy to peddle them with a horse and wagon, better still. The price usually paid for retailing berries is ten per cent. The groceryman makes good all losses in crates and baskets.

A card inserted in the local paper that you grow berries, and that they may be had at "Brown's grocery," will help the sale of them wonderfully. If you grow extra choice fruit, a sample carried to the editor will make him feel good, and secure for you a friendly notice in his paper. If you are to peddle your fruit it may pay you to go around among the town's people and secure their patronage, especially if you have competition. Keep a lookout for your competitor and see that he does not get the start of you. I used to follow right around after other growers and sell where they could not, simply because my berries had the best reputation and people knew I would be around. The more experience I have the more I am convinced that the people want the best; quality rather than quantity. The berry grower can keep his trade only by devoting himself to business and trying always to please his customers. Do not disappoint them by not being on hand when you agree to. I can

close my eyes and see the ladies of a certain street in our town, how they used to stand out and wait for me to come along just before tea time. With their tin-pans they presented a comical sight. I held their trade till I began to ship to New York city.

The berry grower who peddles his fruit should always be clean himself and have his horse and rig in first-class order. The importance of this cannot be over estimated. People won't patronize a sloven if they can somebody else. They also don't like to trade with a man who drinks. I do not think that strawberries permeated with tobacco smoke are very palatable either. The berry grower can also make himself obnoxious by creating too much of a noise on the streets. I would not yell out what I had to sell, but rather go to the side door and there make a sale, carrying along a sample of the fruit in a "handy" or basket. It may be well to arrange for the berries that are wanted the next day if possible. Take the orders for the canning berries to be delivered some day when you have a surplus from supplying your regular trade. Arrange for people to take their canning berries in the flush of the picking, that you may not have a lot to spoil on your hands. When we grew but an acre or so of strawberries, we used to take charge of the pickers in the forenoon and peddle the fruit in the afternoon. We liked to peddle and gave it up from necessity. The berry grower cannot be in two places at the same time and we think that another person can handle the marketing part better than the picking.

I used to have several grades of berries and charge different prices. The people who bought the best were not always the richest people. To some a strawberry is a strawberry no matter what it is like. The person who sells strawberries will soon learn what people

want and what they are willing to pay. The rank and file of customers will measure their pocket-book before they buy and select accordingly. The fact of which is proved by the following: If of two persons who begun strawberry culture 10 years ago, one grew Crescents and the other Sharpless, the man who grew Crescents is ahead every time so far as money made is concerned. Now that we have Bubach and Eureka, large varieties that produce as much as Crescent, of course the tables are turned. Up to the advent of the Bubach large varieties were unproductive in proportion to their size.

When strawberries are shipped away they have to be sent generally to people whom we have never seen and upon whom we are entirely dependent. It is well to look up the bank standing of a house you are to send berries to, and in other ways ascertain as much as possible about their reliability. If you have a friend in the place, have him go and look them up. Some commission men get out flaming posters and when you look them up they have no reputation and may do business on the sidewalk only. Spot such people. When you get a good reliable commission man and you are sure he is, stick to him. Don't send your fruit all to one house one day and to another the next. If you send to more than one house divide the shipment equally between them each day. At the close of the season, figure up and see which does best with you. If there be little difference it may be well to continue sending to both. I like to send to two houses that I may know how the market is. You are less liable to get gutted. However, if you have ample proof that your commission man is all right it may be better to send all to one house. For by sending to two, your berries compete against themselves.

Where the local market is not good enough to take all the supply, it may be

well to open a market in adjoining cities and towns. The berry grower can visit these towns and ascertain who will handle the berries and about how many they will take each day. He should be sure to secure reliable parties and make definite arrangements. Then when the season arrives all he has to do is to draw his berries to the depot and ship them by express. In places where there are a large amount of strawberries grown it may be well to form an association and send an agent around to make arrangements in the adjoining markets. This was the plan formerly used in our country.

At present our people here in Oswego county send their strawberries to New York and Philadelphia. Since the system is similar to that practiced in nearly all large strawberry sections I will describe it. The railroad runs right through the strawberry section, and at all the large receiving points the strawberry growers build ice houses for the purpose of holding the ice used to ice the refrigerator cars used for carrying the berries. A company owns the ice and charge the growers who do not own a share in the company five cents for each crate of strawberries they send. Those who belong to the company either help fill the house or pay so much. Cars are iced and sent out to stations that do not take in enough berries to warrant filling an ice house. The cars are left on side tracks, and as the loads of berries come up they are unloaded into the car. The Berry Train is a special train, and starts at Richland, in the eastern part of the county, at about 2 p. m., and travels westward, taking on berries at the several stations along the route to Oswego. From here it continues westward to Sterling Junction. Here it unites with the berry train from Western New York. The united train now cuts across this state into Pennsylvania, where the train

is again divided, one part going to Philadelphia, and the other to Jersey City. From Jersey City the berries are ferried across the Hudson to New York, and carted to the commission houses. The berries arrive at the commission houses about midnight, and are sold under the glare of the electric light about 3 o'clock in the morning. My commission men tell me that berries never can look better than when exposed to the electric light. They shine. The commission man is up about 12 o'clock, arranging everything in the most attractive manner. About 2 or 3, the retailer comes in and makes his selections. He looks at the berries, takes out a basket and examines its contents. The whole crate is judged by the sample. It will be seen that it is very important to have every basket in uniform grade. The berries are sold to the retailer, by daylight they are exhibited at his grocery and find their way to many breakfast tables. The retailer buys the berries outright, and can ask what he is liable to get. The wholesale commission man is paid a commission of ten per cent. He must make the sale or let the berries spoil, and being his servant must at the same time please the shipper. One can readily see that the commission man is in a not-to-be-envied position, and we should be charitable with him.

The cartmen charge ten cents per crate and the railroad from sixty-five to eighty cents. One can see that it costs about three or four cents per quart to sell the berries. Growers do not feel this unless they have some shipment sell for about five cents or less. Of course the more the berries bring the greater will be the commission man's returns.

SELLING AT HOME.

Of late it has been quite popular among growers to sell their berries on the market at home. Commission houses in New York and other cities, send buyers to all

the great shipping centres and keep them posted in regard to the condition of the New York market by telegraph. These buyers stay through the season and generally get most of the berries shipped. There is great strife among them and they often pay more than the market will warrant. This pleases the farmer. The season of 1890, buyers run the Wilson strawberries up to \$5.00 per crate on the markets in Oswego. Towards the last the berries get soft, and are generally sold to canning factories in Western New York. I quite favor this idea of locating the market here in Oswego, as prices have been higher ever since it has been in operation. The grower gets his money when he delivers his berries, and therefore runs no risk. The buyer knows what he has paid and how much he has to sell them at in order to get out of it.

Chicago is a great receiving and distributing point for strawberries grown all through the Mississippi valley. The berries are sent in to Chicago by the car load from the time the picking season begins, down in Louisiana, till it winds up with the berries from Michigan and Wisconsin. They are re-shipped to smaller towns all over the North. I was told by a friend who lives in Benton Harbor, Mich., that he could buy the berries grown around that city in Chicago, and ship them back to Benton Harbor, cheaper than he could buy them at retail in Benton Harbor. I know that in our village the price is often ten cents per quart when they bring less in New York city. Of course this cannot be helped. The large shippers all send to New York, and if once they put their berries on the local market the price would go to nothing.

COST OF RAISING A CROP.

The cost of growing a crop of strawberries varies with the season. In the wet seasons the cost is very much more than when it is dry. For one acre in an

FARMER ON THE STRAWBERRY.

average season it will cost about as follows; Use of land, \$10.00; plowing and harrowing, \$5.00; marking, \$1.00; cost of plants, \$20.00; setting out, \$4.00; horse cultivation, \$15.00; hoeing, \$16.00; mulching material, \$12.00; applying and removing mulch, \$5.00; crates and baskets for 3600 qts., \$80.00; cost of picking, \$72.00; drawing to market, \$10.00; superintendent's labor, \$15.00; packer's labor, \$15.00, amounting in all to \$280.00. I have not counted the cost of fertilizers, since strawberries leave the ground in the best of condition, and take very little fertility out of it. At seven cents per quart the average net price received, 3,600 quarts will come to \$252.00. This leaves a balance of \$18.00 on the wrong side of the ledger. It will be seen that the expenses are something to make a start in strawberry culture, same as in everything else you engage in. The second year, however, the expenses are comparatively light. There will be plenty of plants on the first bed to set the new one, and no new crates will have to be bought. I have taken into consideration the value of the proprietor's own time. This is not generally figured in now-a-days by farmers. Where the farmer has several children the picking bill may be saved in the family. This is an important item. Plants may be sold to the neighbors and thus add an important part to the income. All in all, on an average from year to year, I think the average net profits from an acre of strawberries is about \$100. I think that it actually costs about four cents to raise and get to market a quart of strawberries, and all received above that is clear profit. My estimate of course has been the average cost, and the average price received. I think that it cost double to care for strawberries last year what it did two years before, but our average net price last year was about ten cents per quart.

THE PROFITS.

As I have before stated, the average net profits from an acre of strawberries is about \$100. The skilful grower who plants the large, fine flavored varieties is not content with this. The slip-shod grower gets along with less. With ordinary cultivation and liberal fertilization I have grown Crescents at the rate of 15,-000 quarts to the acre. At seven cents per quart, this amounts to \$1050.00. I know a Mr. Stone of our county, who produced 324 crates of Wilsons, Crescents and Burts, mixed, that sold for \$1050.00 from one and one-half acres. A Mr. Ingersoll, near us, picks 200, thirty-six quart crates from one acre of Wilsons. But I will not cite any more large yields as they tend to demoralize the strawberry business. Farmers hear of these large yields, they rush into the business in a wholesale manner, the markets are glutted, the price goes below that which will admit of any profit, and the farmer is discouraged. He no sooner gets into it than he is getting out again. The man who wishes to succeed must keep right along.

But the profits from strawberries are not all we get out of them. We have them to use in our own families. Many families would not have this luxury if they did not raise them for market. The farmer does not feel the cost of berries when he raises them himself, but even at five or six cents per quart it amounts up rapidly when ten or fifteen quarts are used per day. It is a great pleasure for me to associate among fruits. It tends to make one better, I think. To watch the first leaves unfold in the early spring; the growth of the blossom buds till they finally burst into full bloom; to note the difference in form of the differently sexed blossoms and how they perform their functions; to watch the berry as it develops from a little thing and finally changes both color and tex-

ture when it is ready to eat, all this is a real pleasure to me. To those who only see in anything the dollars and cents they are to get out of it, I suppose there is no more poetry about strawberry growing than about anything else.

CRATES AND BASKETS.

It is interesting to note the change in form of the different packages used in marketing strawberries. At first people used to take them to market in pails or market-baskets. Then the great lumbering crate as large as a tool-chest came into use. This was modified and reduced in size from year to year, till finally we have a crate that is both light and durable as well. Along the Atlantic coast the crate generally used is a bushel crate. This is made as cheaply as possible; little regard is given to appearance. The top, bottom and ends are tight. The sides are slatted. There are 4 tiers of baskets, with 8 in each tier. The baskets are shallow and hold a dry measure quart.

In Oswego Co. the crate generally used is the Baker crate. This holds 36 qts. The bottom and top are tight, but the sides and ends are slatted so as to admit air. The crates are made very heavy and strong. On the outside of the corners a strip is nailed on to protect and strengthen the crate. This prevents the crates setting closely together that no air may circulate among them. We find this crate very serviceable, but rather expensive. These crates are generally painted, and keep for many years when housed.

At Rochester, N. Y., is made a patent crate called the "Climax." This is the finest crate we have ever seen, but is quite expensive. It holds 32 qts. and is similar to the crate used along the Atlantic coast as regards shape. The sides and ends are slatted so as to let in the air. The corners are protected by sheet iron, which makes it strong.

Out in Illinois, and all through the Mississippi valley, the growers use a "gift" or non-returnable crate. These hold 16 or 24 qts., and are made of stuff shaved out like the material used in making cheese boxes. The cross pieces are of one-half inch stuff. This crate is nailed together when berries are put in it, and thus is plenty strong enough. The advantages of the "gift" over the returnable crate are many. In the first place, they may be bought for about $\frac{1}{4}$ cent per qt., including crate and box; while the ordinary crate costs about 3 cents per qt. This is a very important item for the beginner with a limited capital to consider. Then the freight must necessarily be less, because the empty crate will not have to be returned. When we send a carload to a large distributing point like New York, they can better be reshipped in "gift" crates than in returnable ones. This will open a larger market for our fruit. The fruit will sell for more than enough to pay for the package because always in clean packages. Many people will buy that otherwise would not because they have something to carry the berries in. Especially is this true when people wish to eat them fresh.

The "gift" crate is sufficiently ventilated for practical purposes. The boxes are made rather tight and thus will hold small raspberries. The boxes are exactly square and the bottom raised that one may set top of the other when heaped up a little. This raised bottom gives the appearance of trickery and is the only objection that people will have against them. But the box holds a dry quart and is all right if people understand it.

PACKING HOUSE.

It is very important to have a suitable packing house where the strawberries may be carried, fixed off, and placed in the crates. If there is any old building

near the berry patch it may be used. If necessary to build, we would do it in the following manner: Set posts at each corner about seven feet high; board up the end towards the prevailing winds; use the other end for the door. Erect shelves three feet wide all around the inside and about four feet from the floor. Board up the sides up to the shelf, and above the shelf have swinging doors that may be opened when at work, and closed during a rain storm, or when the shanty is not used. If used as a storehouse for crates after the picking is over, it is a good plan to have the building strong and tight. Loose open sheds are sufficient for protection from sunshine, but are not the thing in a rain storm. We have a plan to build a packing house of this same shape, but stouter and more elaborate, with rollers under it, so that it may be moved around as you change the location of your berry bed, and kept from year to year.

CAUSES OF FAILURE IN STRAWBERRY CULTURE.

Everybody does not make a success in strawberry culture. There is probably as great a percentage that fail as in any other business. The reason is that they are not adapted to it. We are adapted to certain lines of work, and if by chance we do not happen to take up that particular line, we make a failure generally. Of course there are people that can adapt themselves to most anything, and therefore do not make a complete failure even if they happen to get in the wrong pew. Then there are other people who never will succeed in anything, simply because they are too indolent and lazy. There is a class of people that are into everything and change their occupation so often that they do not give themselves time to ascertain whether a thing pays or not, before they are into something else. I have seen people go into the berry busi-

ness with a rush, and the year after they picked the first crop they were into something else and had thrown up the berry business. You can see that they lose money because the main part of the expenses come the first year. If a farmer has a large farm and is making money by raising anything else, I do not advise him to go into the berry business, especially if he has something to attend to in picking time. The berry business requires the proprietor's personal attention. Some people expend a lot of money for new varieties of plants, and for expensive fertilizers, and then do not give the plants proper attention. It is best to try new kinds only in a small way. Get six or a dozen plants and test the variety before you plant it largely. Three-fourths, yes, nine-tenths of the new varieties do not succeed the country over. Get a few of each variety, test them and find out what you want. Make the main planting to varieties that are a success in your neighborhood. Thousands of dollars are wasted each year on varieties that are of no use to the victim. It is not safe even to rely on the Experiment Station reports, simply because their soil may be different from that of your own. Many beginners make a mistake by going in too deep. They think that if half an acre will pay that ten acres ought to pay better. Poultry keepers tell us that fifty hens will pay better in proportion than 500. It is so in berry culture. One half acre properly cared for will pay better than ten acres tended in a slip-shod manner. The beginner should go slow, by beginning with not over a half acre and increasing his acreage as his knowledge increases. With all that is said and written, there is no such valuable knowledge as that acquired by experience.

HOW TO START IN BUSINESS.

In every neighborhood it is a good plan to have someone who is well posted

in varieties that succeed in that locality. Those who wish to go into the business of raising berries for market, or those who want to put out a few for home use will appreciate it, if they can depend on the person to tell them the right variety. Thus you see there is room for a profitable business in selling plants right at home. The person who goes into this will have to be more observing and careful than if he merely grows fruit. The different varieties will have to be set in separate rows where they will not mix by running together. If by mistake a plant gets in the wrong row it should be pulled out and thrown away. An observing person can detect the difference in foliage between the varieties during the growing season, but he cannot in the early spring before the leaves start. Six plants of any new variety will be enough to start with.

HOW TO GET A BIG GROWTH.

Make the soil as rich as you can afford by putting on manure from year to year. Scatter ashes and superphosphate over the soil and rake or harrow in before the plants are set out. Use nitrate of soda around the plants just after they are set and superphosphate at regular intervals of a month throughout the season. Do not put on too much commercial fertilizer at a time, a small handful to the hill is enough, and be sure and not get it on the leaves. If by chance it falls on the leaves, take a broom and brush it off, else it will kill the leaves and therefore injure the growth of the plants. Make the rows about 8 ft. apart for rapid growing kinds and the plants may be set 2 ft. apart in the row. Take as much pains as possible in setting out the plants. Spread the roots out fan-shape and put them down straight as far as they reach. Do not double the roots up in a bunch together. See that they are properly spread out. Wet the roots in

setting them out then the dirt will cling to them and they will start sooner. In a few days after setting, stir the soil around the plants lightly with a rake or hoe. Do not at any time dig deep enough to injure the branching roots. Hoe shallow as often as possible throughout the season. The more you hoe them the more they will grow. Do not allow a weed to show his head. Pinch off the first runners till the plants get strong and stocky. Then allow the runners to grow and strike root. Trail the runners out straight, perpendicular to the rows, that they may cover as much space as possible; for as soon as a plant roots nicely it begins to send out runners of its own accord. Keep the soil loose and porous under the runners that they may root without much trouble. In working around the plants be careful that you tread the soil as little as possible. Keep the rows always elevated as much as possible with a depression between for carrying off the surplus water. The runners that have not already rooted should be covered with small stones, or a little soil. Keep the soil not wet but moist, by applying when necessary water or liquid manure, with a sprinkler, just after sundown. Do not water in the sunshine, as water put on to foliage in the sunshine will burn it. If there be any space between the plants not filled up by the middle of September, trail the runners towards that. I think it quite possible to make 500 new plants from one parent plant in one season. It all depends however, on the variety, and the treatment. Varieties of the Crescent type will make ten times as many plants as those of the Sharpless type. I have seen rows of the Cloud and Eureka respectively, spread ten and twelve feet wide, in a single season. Ten thousand plants were grown from a single dozen in one year of the Crescent variety. The plants were set ten feet apart each way, early in April, and by fall had complete-

ly covered the ground. For the person who grows plants for sale, it will pay him to give this high cultivation with scarce and high priced varieties only. Ordinary standard varieties may be set about one foot apart in the row, with rows five feet apart on ordinarily rich soil. Allow the plants to spread as far as possible, merely keeping them from mixing together. Mixed varieties are an abomination, as you can never tell how many of either kind you have.

WILL VARIETIES MIX IF PLANTED TOGETHER?

I am often asked the above question. Yes, they will mix same as corn and oats will mix if turned in the same bin. They retain their individual traits just the same no matter how long or how thoroughly mixed. Plants will mix only mechanically. But if you plant the seeds of a variety of strawberry that has been planted along side another variety, those seeds will produce a new variety that may have some of the peculiar traits of both the parents. The fruit of some kinds is also changed by association of several varieties together. But Wilson plants will be Wilson plants no matter how many other varieties are planted along side and among them. Strawberries only mix through the bloom.

THE EFFECT OF STAMINATES ON PISTILLATES.

There has been much difference of opinion in regard to whether the fruit is affected by the variety used to fertilize. Those who think in the negative argue that soil differences and difference in the seasons are the main causes for the variance of pistillate varieties in fruiting. It is true that difference in the weather has some effect, as also has difference in soil. But these two agencies cannot cause all the variance. This has been proven by experiments at the Geneva Ex. Station.

Several potted Crescents were isolated so that no pollen could reach them through the air only as it was applied artificially. At the proper time pollen from several different staminate varieties was applied by hand for the purpose of learning the effect it would have on the fruit. The result is shown by photographs. The Crescent fruit not only takes on shape according to the variety it is fertilized with, but size and general appearance as well. Really I do not see why the fruit from plants should not be modified by association. Animals are affected by association. We do not mate the choice animal with the scrub for best results, but rather with the thoroughbred. Members of the human family are affected by marriage one way or another. All of our associates have a certain influence on us. Is this not equally true with the vegetable kingdom? I have noticed that staminates effect the shape, size, color and firmness of pistillate strawberries. If you want either of these qualities developed to the highest extent, plant staminates that are prominent in these traits.

PISTILLATES VERSUS STAMINATES.

As a rule pistillate varieties of strawberries have proven the most productive with us. They must be properly fertilized however. There should be a sufficient number of staminates planted among them, and the stamine should blossom at the same time as the pistillate. Half pistillates and half staminates will be the best proportion. But if the stamine variety be a vigorous grower, like Michels Early, one row of them to three rows of pistillates will suffice. A good plan is to set five rows of each alternately throughout the field. A poor plan is to mix the plants in the row unless they be of the same vigor. If an equal number of Michels Early and Cloud

were mixed together, all would go well. But where Wilsons and Crescents are mixed in the rows, the Crescents will run the Wilsons out in a few years and all will be Crescents. This has been tried in Oswego county. Somebody mixed Crescents and Wilsons together and sold them as a new variety, calling them Scrawlers, Crawlers or Sprawlers. All went well for a few years, and old Wilson devotees who would not plant Crescents, planted Scrawlers. But as the Crescents run more than the Wilsons, it was not long before nearly all were Crescents. Crescents will not produce perfect berries when planted alone, and so the growers had to lay it to the weather. Keep different varieties in different rows and thus save trouble.

Pollen is carried from the staminate to the pistillate blossoms by bees, and by the wind. If a driving wind occurs in the blossoming season, the pistillates always bear best. If it be very rainy during the blossoming season the pollen is not distributed by the bees and the wind, but is washed off and goes to the ground. Hence, pistillate varieties are less productive and of poorer quality in a wet blossoming season. This was especially true during the season of 1890. This was the rainiest season we have had for many years. Pistillates were surpassed in a few instances by staminates in productiveness.

*STRAWBERRIES SOMETIMES
UNPRODUCTIVE.*

People write: "I made the soil rich and the plants made a fine growth, but we had very few berries."

Clear pistillates like the Manchester and Champion will not produce fruit if planted alone. Inexperienced persons often get only pistillates to set out, and thus have only their labor for their pains. Strawberry growers often give away plants from their old beds to their neigl-

bors. If the bed be Wilsons and Crescents, the Crescents will show up more vigorous, and an inexperienced person will be quite sure to get only Crescent plants.

There are varieties of strawberries that will bear almost any amount of fertility. There are other varieties that will run to vines if too much manure is used, and produce very little fruit. Then too, difference in soil and climate has much to do with the fruiting capacity of different varieties.

HOW TO GET KNOWLEDGE.

The person who is to go into the strawberry business should get all the knowledge possible before beginning operations. Experimental knowledge is the most valuable, but it costs lots of time and money. A person should get all of the books he can on the subject and read them. Subscribe for fruit papers and study them. Get full of the subject from reading and then go and see some practical grower. Learn all you can of him. Visit him several times during the season so as to see the plants in the different stages. There is no end to the amount of knowledge you can thus get. In reading you will come across much that is not practical. The novice is liable to pay more attention to the unpractical portions of an article than to the valuable. Use your common sense when you are reading. Always use your common sense at all times.

*THE EVOLUTION OF THE
STRAWBERRY.*

Some people think that if we take up plants of wild varieties and transfer them to the garden, giving good culture, that the plants will bear fruit large like tame or garden strawberries. This is not so. We have tried it. The plants will grow better and cover the ground, but the berries, if anything different, will be

smaller. You might cultivate them in the garden for centuries and they will not produce large fruit. The new varieties of garden strawberries are produced by crossing varieties now in cultivation and sowing their seeds, when the seedling will develop a new variety. At one time all strawberries were wild. The so called garden strawberries were produced by sowing the seeds of cultivated wild ones. Wild plants were given a place in the garden under high culture. Seeds from these berries were sown and the result was a berry larger than the wild ones. Then seeds from the improved berries were sown with the result of still further improving the variety. This process was kept on till a very large and valuable variety was produced. Then by sowing the seeds of the wild cultivated berry several varieties of improved ones were produced. These were crossed with a still further variance and improvement in the seedling produced. This process has been kept up for ages till the small wild berry has evolved into the mammoth cultivated berries that we grow now. Any one can see the improvements made better by putting a Bubach in a dish of wild strawberries.

THE SEXES OF STRAWBERRY BLOSSOMS.

It has been shown that pollen from staminates has an effect on the pulp of the berry crossed. The greater effect however is on the seeds. If you examine a strawberry blossom when it first opens you will observe that it is peculiarly made up. In the center of the blossom is a little green mound. This is the part that develops to a berry. On the outside of this little mound are little hair-like projections. Some of these have brown dust or pollen on the ends. Others have not. The former are stamens or the male organs of the plant. The latter are pistils or female organs. Blossoms that

have both of these organs are called hermaphrodites. Those that have only pistils are called pistillate varieties or females, while those that have only stamens are called staminates or male blossoms. Hermaphrodites will bear alone. Pistillates will bear only when crossed by staminates or hermaphrodites. Staminates never bear fruit and are of no use unless to fertilize pistillates. In order that the pulp of the berry shall develop, it must have its seeds fertilized. The seeds are on the outside of the little mound or receptacle at the root of the pistils. This is the process of fertilization:—The pollen from the stamen drops on the top of the pistil and follows down its inside till it reaches the seed. If the variety be a pistillate the pollen is carried from stamine plants near-by by the wind or on the legs of the bees as they go from blossom to blossom. The process of producing pollen is a wasting one. Therefore hermaphrodite varieties are not so productive as pistillates. They may set a large number of berries but are often unable to bring them to maturity, because the production of pollen is a great drain on their vitality. We find this especially true with the Bidwell strawberry. Some hermaphrodite varieties set only a few berries and are able to bring the whole crop to maturity. This is true with the Gandy and others.

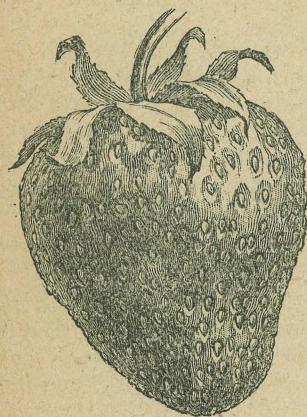
ORIGINATING NEW VARIETIES.

The most simple way of originating new varieties is by planting pistillates and hermaphrodites together. The blossoms will be crossed naturally and the seeds if sown will produce a new variety. Nineteenths of the new varieties are produced in this way. The results are very uncertain, as we cannot tell which varieties have crossed with the pistillate, if several varieties are in the field. Varieties often cross in this way, and we find seedlings in old beds that are very valuable. If

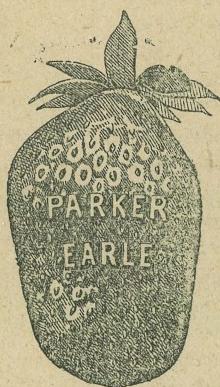
one would be sure of the result, he must isolate the varieties so that no other pollen than that from the variety wanted can reach the pistillate. This is done by planting in a greenhouse; or by covering the plants that are to be crossed by glass domes, and carrying the pollen from the staminate with a feather. When staminates are crossed with staminate, the stamens are cut out from one variety and pollen is carried to its pistils from the other variety by a feather. This must be done very carefully and early in the morning, just as the blossoms open.

In order to get the best results, it is

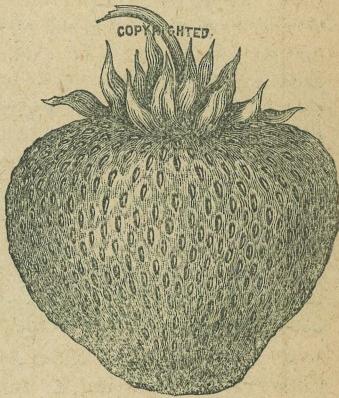
in the box till spring, or transplanted to the open ground. They are now set about 1 ft. apart in the row with rows about 3 ft. apart. The runners are all kept off till the plants bear, which will be the following June. The varieties that are worthless may be pulled out and thrown away to give room for the promising kinds to spread. New varieties do not always show their best the first year of fruiting, and it may be well to let them fruit two years before deciding in regard to their merit or value. I would keep the runners off mainly, so that they will not become mixed together.



AUBURN.



PARKER EARLE.



MIDDLEFIELD.

best to pick off all the berries on the plants but two or three, that the specimens treated may develop to the largest size. When the berries are dead ripe they are picked and the pulp is mashed and the seeds taken out. The seeds may be sown at once, or kept till the next spring. If sown at once in a box, covering lightly with soil, the seedlings will show above ground in about three weeks. In a few weeks more they should be pricked out into another box about two inches apart each way. In a month more they will have to be again transplanted as they will need more room to grow. The seedlings may either be kept

DO VARIETIES RUN OUT?

Since our large varieties of strawberries are produced by high culture and crossing. It stands to reason that they will deteriorate and finally run back to the original state if the high feeding and culture that has brought them to this state is not kept up. Since all cultivators—we might well say very few do—do not keep up the high culture under which a new variety starts out in existence, is it any wonder that varieties run out? Because of the fact that seedlings raised by experts get such high culture before they are sent away from home is the reason for the failure with new vari-

ties. New varieties that originate by chance in old beds are therefore more apt to be valuable generally and they retain their characteristics longer than do those that are grown by artificial means.

THE WILSON STRAWBERRY.

I have grown strawberries for years and have tested nearly every variety. The Wilson has never paid expenses with me; but I have grown it every year, hoping that I could make it profitable. Our soil is gravelly loam, well drained and sloping to the south. The Wilson has done well with some of my neighbors on soil similar to ours. In 1886 a Mr. Ingersoll picked 200 36-quart crates from one acre. Since then, however, with the same treatment he has not been able to secure a crop that would pay expenses. In the town of Scriba, near Oswego city, C. H. Stone last year secured \$1,050 worth of fruit from $1\frac{1}{2}$ acres of Wilsons.

If a New York or Philadelphia commission merchant is asked to name the best strawberry, he will almost invariably name the Wilson. For the reason that dealers prefer it, and because many have lost money by planting newer varieties, the Wilson is still the leading berry in Oswego county, so far as acreage is concerned. The Crescent crowds it closely.

With right treatment, which means liberal manuring and careful cultivation, I think the Wilson may still be made to pay, as it furnishes pollen for early varieties. In fact I know of no other early variety that will surpass it for this purpose, perhaps, excepting Pearl. I will admit that taking plants from old and diseased plantations, and also careless culture, have done much to hasten the result. That the Wilson has actually deteriorated may be proved by consulting anyone who grew them years ago and who also grows them now. I can remember how they used to grow in my

grandmother's garden fifteen years ago. A little spot about a rod square produced enough berries for several families. For the past few years the Wilson has rusted badly around here, some patches producing nothing, while Crescents close by bore a full crop. Many are discouraged, and there is a great demand for something to take its place. The Bubach has been shipped to N. Y. two seasons, and has proved a success so far, selling at four cents per quart above Wilson and Crescent.

HOW TO RESTORE THE VALUE OF A VARIETY.

Strawberries that have run out, in a measure, may be restored to their original state by proper selection and care. Select the largest plants to be found and from these take the new plants for your setting. Continue selecting the largest plants from year to year. Never allow the plants that you grow for the sole purpose to raise plants, to bear fruit. Do not take the plants from the tip end of the runners. Select the plants that root first. Do not ever take plants from an old bed that has borne fruit once, they will not grow so well when set out nor bear as much fruit as new bed plants.

FALL SÉTTING OF STRAWBERRIES.

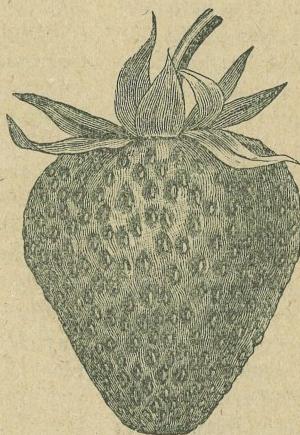
The soil where strawberries are to be set in the fall, should be rich, well pulverized and mellow as an ash-heap, since the plants have little time in which to become established for fruiting before winter checks growth. A plot from which early vegetables, such as peas or potatoes have just been harvested, especially if it be very rich, is desirable. Remove all rubbish and plow or spade to the depth of ten or twelve inches, incorporating in the soil at the same time a supply of rotted manure or phosphate. After plowing, sow on ashes or phos-

phate at the rate of twelve or fifteen pounds to the rod. Now rake or harrow till the soil is mellow and free from lumps. Mark off the ground into rows three feet apart and set the plants six to twelve inches apart in the rows. The soil should be well drained, but if water is liable to stand around plants, the ground should be slightly raised when the plants are set, leaving a slight ditch between the rows of plants. There are many ways of setting plants, but any way is good, provided the roots are put down straight, or at a slight angle, and not doubled up in a heap. It is important

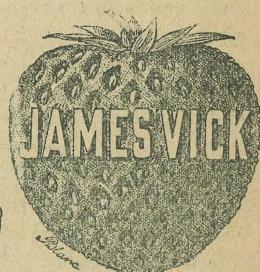
be cut off, and later on, allow only about two runners to each plant to root. This will leave a nice narrow row for fruiting. During cultivation, especially if the soil be not over rich, a small handful of phosphate or shovelful of rotten manure or both, placed between each hill and hoed around the plants, will increase the yield wonderfully. Ashes are also good, potash tending to give firmness and color to the berry. At each hoeing, particularly if the plants have been set on a level, draw a little earth up around the plants. This will leave a depression in the middle for the water to pass off. On



BELMONT.



WARFIELD, NO. 2.



JAMES VICK.

that the crown of the plant, that portion where the roots and leaf-stalks unite, and which constitute the real life of the plant, should be just even with the surface of the soil; If below the surface, the plant will smother; if above, it will dry up.

The after cultivation consists in keeping the ground free of weeds; and if the soil be rich, it will be frequent and sufficient. The rows should be made as long as possible in order to save turning around, where a horse is used in cultivation. In moist weather cultivate deep; in dry, shallow. The first runners should

the approach of winter, the best time being the first freeze-up, cover the entire bed two or three inches deep with some coarse material, such as straw, leaves or coarse manure. Early in the spring remove the covering and cultivate or spade deeply between the rows close enough to the plants so as not to injure the roots. Now replace the mulch, putting it between the plants and close up to them, and leave it on till after fruiting. No further care will they need till picking. Everyone knows how to pick strawberries, and I will give no further instructions. In conclusion will say that if ev-

erything is favorable, weather, soil, etc., there is no better time to set strawberries than July or August, possibly September at the north. They occupy the ground less than a year, require less labor, and, on account of extra size and color, command better prices. The most paying patch we ever had were some Crescents, set August 1st. However, I would not attempt to set much of a patch if the soil be dry, for if not well watered the plants receive a check from which they rarely recover. Two or three hundred plants can be easily watered, but not so with several thousand. Water after the sun goes down, and shade plants with old strawberry baskets, dock leaves, etc. If plants are watered the soil should be stirred next day, else it will bake around and soon destroy them.

SMALL FRUIT FOR THE FAMILY.

Those who have not the luxury of a garen of small fruits may be surprised at the following facts:

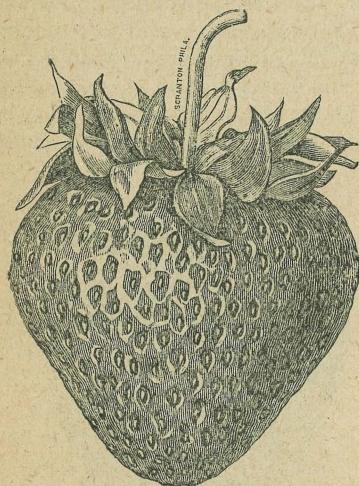
Our strawberries begin to ripen the middle of June and continue for about one month, when raspberries take their place. Following them come blackberries and finally grapes. Currants ripen during the latter pickings of strawberries and first of raspberries. We have known them to remain on the bushes till late in the autumn. Sometimes we have strawberries, white and red currants, red, white and black raspberries, on the table at the same time, and I assure you they are far better for the health than so much meat. It may seem curious, but salt pork tastes best of any meat to us during the strawberry season. I suppose it tends to neutralize the acid of the fruit, too much acid being hurtful especially to people of a nervous temperament. Farmers could dispose of their pork more easily and with less headache, had they a plentiful supply of strawberries. We have been in the small fruit business for ten years

and our doctor's bills have been comparatively nothing during that time. Before they were a heavy burden. We never feel so well as when there are fresh berries on the table every day. Our intellect is clear. We can think and write better and do more physical work. With bread and butter, we sometimes make a meal of strawberries or raspberries, eating nothing else. How much fruit do you suppose we eat? Our family consists of from eight to ten persons. Of strawberries we use three or four quarts to a meal; usually twice, sometimes three times a day. Frequently we consume 250 to 350 quarts of strawberries a year, including those canned and used fresh. Currants are mostly canned and made into jelly. Blackraspberries are dried to use in puddings and pies for winter. But during their season black raspberries, as well as red and white raspberries and blackberries are used fresh on the table, two or three quarts to a meal. We don't feel satisfied unless we have a large supply of berries canned for winter.

When I was a boy, our people used to buy 20 to 30 quarts of raspberries or blackberries to can, and these had to answer unless we found time to go off "a berrying." These times generally come during haying or harvesting and some day when the sky looked cloudy in the morning. The team would be harnessed to the democrat wagon, and all would go except one, who stayed at home to look after things. After driving several miles into the berry country the horses would be hitched to a tree and the pickers would scatter in all directions. Those who went off by themselves would have the best luck and maybe fill their pails. Late in the afternoon all would meet at the wagon tired and cross. Then we all drive home in time for chores. If 40 or 50 quarts were gathered, the picking was pronounced good. For strawberries the women folks would search the old

meadows, destroying more hay than the berries were worth.

Now if the time given to "going a berrying" had been distributed over the whole of a single season, and devoted to procuring plants, setting out and cultivating desirable varieties of all kinds of fruits, how much better would have been the result, how much better the supply; to say nothing of the exhaustion which some would not get over for weeks, of tramping miles over old logs and through brambles for wild ones. Yet in view of all this, how few have even so much a luxury as a strawberry bed. Go through the country and the farmer's berry bed, if he has one, is more properly a bed of weeds. One might think that a man, remembering his desires and tastes of childhood, when he had the independence acquired at maturity, and the same tastes, would, among other things, plan and lay out a large fruit garden. But how few do! How soon we forget our childlike desires and ambitions.



GANDY.

L. B. Pierce, a noted horticultural writer, says when a boy, he often envied his neighbors their supply of pears, and resolved when he grew to be a man, he

would have all the pears he wanted. He further says that he has carried out his plans and now has pears summer and winter, and all he wants.

Fruit is unlike other things. If one has more than he can use or sell, it may be given away and is always acceptable. No one thinks he is receiving a gift from the hand of Charity who accepts a basket of choice fruit. Strawberries and other small fruits cannot be gathered in the dark and we have never been troubled by people stealing them. If more fruit was grown, people would not have such a ravenous appetite for it and there would be less "cooning."

CONCERNING THE GROWTH OF PLANTS.

The growth of plants has more to do with success or failure in strawberry growing than one might suppose. My experience is that in order to have fruit we must first have a good growth of plants. For this reason we have always had better success with good growers like Crescent than with slow growers such as Wilson, Jewell, etc. A given amount of plants of Wilson will bear as much as the same number of Crescents. But with ordinary soil and culture the Wilson will make very narrow rows, while the Crescent may spread 4 feet wide and thus produce many more berries. Then too, those varieties making a big growth of plants cover the soil with their foliage which serves as a mulch, and one need not be so careful in covering them early. The idea of growing strawberries in hills sounds nice, but is only practicable for the few who have plenty of time to clip the runners and give the necessary extra care. On clay soils they must be mulched early and deep. If left uncovered even during a slight freeze, the plants will be lifted out some, especially if water stands around them. But wide matted rows have disadvantages as well. The berries will be smaller, especially if the season be dry. For the best results a matted row

FARMER ON THE STRAWBERRY.

about $1\frac{1}{2}$ to 2 feet wide should be secured. The Bubach most nearly meets our idea in regard to growth.

LONG AND CONFUSING LIST OF VARIETIES.

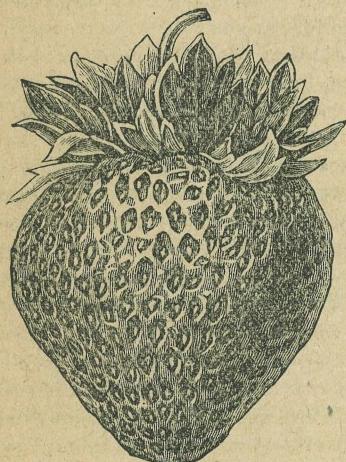
One of the most confusing things that a beginner in gardening or fruit growing finds staring him in the face, is the long lists of varieties. Something good is said of most every variety, and he is at a loss to know which kind to choose. Some dealers have a faculty of writing descriptions to suit their stock of plants. The dealer should give descriptions of those varieties that do well with him, and merely list, without comment, those of doubtful value. Then the beginner if he takes the advice cannot justly blame him. But people say, Why not discard at once those varieties that do not prove profitable? The fruit grower can and should do so, but the nurseryman cannot always, for this reason: While very few varieties

and with most people; but a man in Massachusetts writes me that it is his most paying variety. The Cloud does best in the South but is worthless on rich soil at the North. The Jessie in some sections, notably in Kansas, surpasses the Bubach. Here and all over the east the Bubach far surpasses the Jessie.

A person beginning fruit culture should consult successful growers near at home for advice on culture and varieties. One should go rather light on the untested novelties, and confine himself mostly to the old well tried varieties. It is well to try the new kinds in a small way till their value is determined. One should be governed in this somewhat by his pocket-book. We have never lost much by buying the new kinds, and have often made a good strike. We can always sell plants of choice kinds to our neighbors.

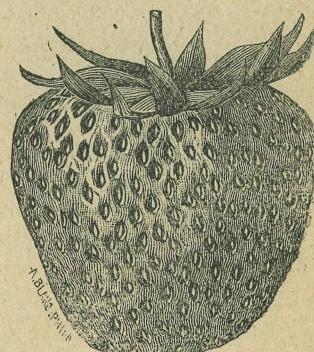
SUBSTITUTION OF VARIETIES.

Nurserymen and seedsmen are often censured and we might say justly sometimes. It is very provoking and annoying to have something sent to us that we haven't ordered in place of that we ordered and have paid for. I once ordered some plants of a new strawberry and, being late in the season, the nurseryman



BOMBA.

become popular the country over, almost every variety obtains a local popularity somewhere. If the nurseryman plows under a variety as unprofitable, he may get an order for that variety the very next day, and thus is money out. The Jewell strawberry is worthless with us



LIDA.

was out of that variety, and sent plants of a variety of which I had a good sup-

ply. If one is new at the business he may be carried away by misleading descriptions and therefore order a variety entirely unsuited to his locality. In such a case the nurseryman renders a favor by substituting some suitable variety. Dealers depend for their success on suiting their customers, and they generally will do what is right.

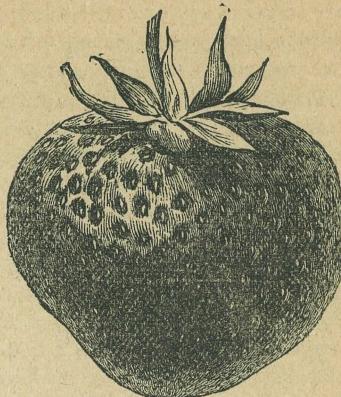
The beginner had better leave the selection of varieties to the nurseryman altogether, especially if he cannot get advice near home from some local grower. To be sure of getting what one wants he should send in his order early, several weeks or months before the stock is wanted. Then there can be no excuse for substituting as there is plenty of time for the requisite correspondence.

Too many people wait till they want the plants before ordering them. Then it is all rush, and there is no time for the leisure required for care in filling the order to say nothing of substitution. If you want a large supply of plants you may get better prices by corresponding. Above all find out what you want and send in your order early, stating when you wish the stock shipped.

HOW I PAID MY WAY THROUGH PULASKI ACADEMY.

No doubt there are many worthy boys brought up on a farm who are desirous of getting a better education than is afforded by a few terms at the country school, but are prevented from so doing by a lack of means. In these close times heavy burdens are put on the farmer because he will not stand up for his own rights, and, of course in trying to make ends meet, he neglects what he should least neglect, the proper education of his children.

It is not the purpose of this little article to rail at the trusts, humbugs or politicians that assail and bleed us on every side, nor, on the other hand is it intend-



PARRY.

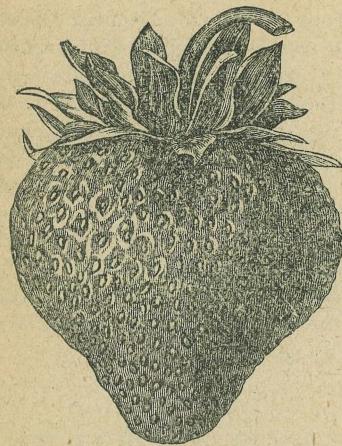
ed to teach rebellion to the rising youth. The purpose is to show by our own experience, how almost any farmer's son can pay his expenses through school, by growing small fruits, and not feel that he is wholly dependent on his poor father, but have the spark of independence about him.

There were few strawberries grown here ten years ago. I was ignorant of their habits and culture. I began the wrong way. Instead of visiting some neighboring grower for pointers, I got my knowledge almost entire by experimenting. My brother had purchased a hundred^s plants in 1879. I helped set them out, my first work among strawberries. I noted their habits closely, especially when the berries began to ripen. Two years later, I was taken with the strawberry "fever." I was wild. I sent for the catalogue of every nurseryman that advertised, and studied them; I subscribed for fruit papers and read every article on strawberries I could find. I was brim full with theories. Having procured a few plants by mail from a nurseryman in Rochester, and dug some from my brother's old bed, I set them out, hoed and cultivated them myself. The next year I had the great satisfaction of carrying my first strawberries to

market. When the dealer turned them from the market-basket into quart baskets and paid me 14 cents per quart for them, I was delighted. I would try it on a larger scale. That spring I had procured more plants and set about one-tenth of an acre. Next spring I borrowed \$25 of my sister and sent for 8,000 plants, enough to set an acre. They came by express from E. P. Roe's nurseries at Cornwell on the Hudson. It took me a week to trim and get them ready to plant. I hired two men to help me set them out. One I had to hurry, the other needed checking. With my experience, I did not notice whether proper pains were taken or not. The next day I examined them and found that the fast man had merely thrown a handful of dirt on the center of the plant, leaving the roots mostly bare. It is needless to say that very few lived. The other man's plants and my own nearly all lived. I have since learned that an overseer should know more than his men. No sooner had the plants been set than it began to rain. It rained day and night and nearly all summer. At times my strawberry bed was entirely submerged with water, preventing cultivation. I believe the weeds were a foot high before they were hoed. Hired help did not always properly distinguish between strawberry plants and weeds. Some of each were cut out; some of each remained. The growing season came to a close and our "patch" looked rather thin and scattering. But my trials were not over. The winter was open and severe. I had neglected to cover the plants with straw, and to add to a host of discouragements, most of them were heaved out and killed. Desirous of saving a few, I put on straw early in the spring and rolled the whole piece like a meadow. When the plants came into bearing I was surprised that they did so well. At 10 cts. per qt., I believe my first acre netted \$100. But how

to dispose of the fruit? Others had begun growing strawberries, and the stores could not sell them all. I started to peddle. Instead of "crying out the name of my wares" on the street to attract people's attention, thereby making myself odious, I took another course. I carried a sample tray of berries to the side door and thus made my sales. The variety had been recommended by Mr. Roe to be superior to ordinary berries, and I assure you it didn't take the people of Pulaski long to find out the difference. There was a call for my berries. I carried a sample to the editor, who gave a favorable notice. People began to want plants, and thus originated my plant business. Although the first acre was coupled with many discouragements, I profited by the experience. Since then, I have grown strawberries in several localities and on nearly all kinds of soil. Some years they will only pay expenses, while in others they are exceedingly profitable. The year 1886 I secured \$225 from seventy-five rods, less than half an acre. In no year have they paid so poorly as ordinary farm crops. My strawberry business was carried on while attending school at the academy 'till the year of graduating, 1887. Picking time and hoeing comes mostly during the vacation, after the spring term, and by hiring a little help occasionally, I was able to keep in school most of the time. Contrary to what might be expected, the opportunities are better for boys to begin now than they were ten years ago. Although ten times as many berries are grown, the price has not depreciated, but for the last three years has steadily increased, till now the ruling price in Pulaski is ten cents per quart. Why? Our surplus berries are now sent to New York and Philadelphia, selling sometimes in those cities at twenty cents per quart, wholesale. A bargain may be made between the boy and his father,

the latter getting a share for the boy's time, the use of the team, implements, etc., used in cultivation. Why not a happy idea? A great many people teach school in order to pay their expenses while attending school, and make teaching a stepping stone to some other business. For the farmer's son, why not substitute the growing of small-fruits, for if he teaches in the winter it will conflict with his attending school.



MONMOUTH.

What might be a stepping stone to others, has become a permanent business with me. I follow the fruit and nursery business because it is remunerative, it is healthful, and I like it. With Nathaniel Hawthorne, I would not live by people's ills; by their quarrels; nor, by their sins.

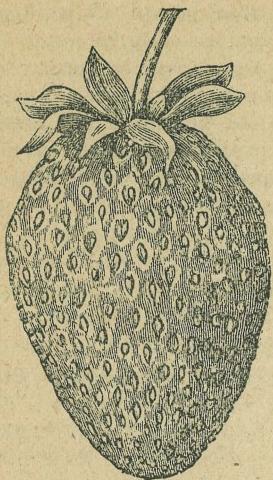
POTTED PLANTS AND SUBSTITUTES.

In potting strawberry plants a pot full of soil is sunk near the old plant at a convenient distance, so as to allow the runner to be placed so that the young plant will take root in the pot. A stone is placed on the runner to hold the plant down, so that by contact with the loose soil it will become rooted in a few days.

As soon as well rooted, say two weeks, the runner is cut, severing connection with the parent plant. At first the plant will wilt, and it should be watered till it will grow on its own resources. To facilitate watering, the pots are generally taken up and placed in the shade till ready for transplanting. Treated thus, potted plants will live when set out. A very common practice is, to set the potted plant without "hardening" it off. This is the cause of failure with many potted plants. Such plants are no better than ordinary layer plants of the same age.

There is nothing to be gained in potting strawberry plants, taking into consideration the extra expense. Besides increased cost for packing, transportation, &c., it costs one cent for pots and labor of potting. A potted strawberry plant set out at the same time as a well rooted layer, which has been taken up carefully with much soil adhering, does not do nearly so well. The reason is obvious. The layer plant, growing naturally, sends down its roots deep and wide, and develops to fine proportions. The potted plant is limited, its roots wind round and round in the pot, "get into a rut" as it were, and when transplanted, continue to wind round and round instead of reaching out in search of food and moisture. If one wishes a supply of plants for summer planting, he had better order layer plants. They will come cheaply by mail or express, may be set closely together and watered till hardened off, when they may be set out permanently. The only advantage potted plants have over layers, is that they do not require the skill in transplanting and are less liable to have their vitality destroyed by handling and in transportation. When exposed to the wind and sun the little fine rootlets are soon destroyed. Herein lies the cause for failure in making strawberry plants live and grow. The potted plant has its roots

covered with soil and escapes injury unless the earth becomes very dry.



PRICE'S SEEDLING.

Layer plants taken up with earth adhering to the roots after they have been hardened off, will make a good substitute for potted plants. I think them more valuable than potted plants. If the soil be dry, it should be thoroughly soaked before the plants are taken up. Such plants can be set upright in a shallow box and shipped same as ordinary layer plants.

In digging layer plants in the summer, a large percentage of the undeveloped plants are destroyed, that if left for a few weeks would make nice plants. With potted plants there is no waste and there need not be any with layers if each plant is carefully layered and the runner pinched off before it starts to make another plant.

STRAWBERRIES AFTER STRAWBERRIES.

I agree with the writer who says that it does not pay to grow strawberries on the same soil for several seasons in succession. The past season, part of our

fruiting bed was on land that had had strawberries on it two years before. Although the plants had the same culture and fertilization, they did not bear half the crop of those on new land right adjoining. The fruit of an old bed is never so firm, fine colored or regular as that from a new one, even if clean culture is given. The constant cultivation essential to the successful growing of strawberries, brings into existence a new set of weeds not common when ordinary farm crops are grown. Although the soil was free from weeds when winter closed in, they came up last spring so as to nearly choke out the strawberry plants on the low ground. Narrow dock, chickweed and other weeds run wild here, but were comparatively unknown on the new ground. While the plants will grow and spread just as well if sufficient fertility is maintained, the fruit is inferior, leading us to suppose that strawberry fruit takes out of the soil something not readily restored by manure.

CLEANING OUT OLD BEDS.

As a rule we do not believe in running a bed more than one year. There is no such thing however, as an iron-clad rule in horticulture. Some years the plants will make such a growth that they wont be a profitable crop the first bearing year; but if left till the second year the crop will be large. After fruiting a variety, its merits may be such as to render it desirable to increase the stock of plants rapidly. In such cases the old bed may be cleaned out and at a profit. If only fruit is wanted, the weeds may be mowed, the mulching material stirred up and when dry all may be set on fire and burned. This not only destroys the weed seeds but checks the ravages of the leaf blight or rust. The space between the rows is now plowed and cultivated till thoroughly mellow. In a few weeks the

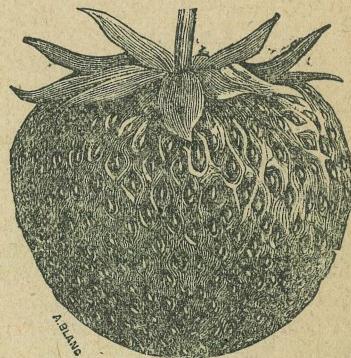
plants will send up new leaves and by winter look as green as a new bed.

If new plants are wanted, the leaves should not be cut off, as the strength of the plant will go towards forming new leaves instead of runners. The weeds and rubbish should all be removed and the space between the rows thoroughly spaded or plowed and cultivated. The rows are now given a liberal dressing of superphosphate or rotted manure. The cultivator should be run through once a week and narrowed up as the plants begin to run. Perennial weeds will start and should be pulled as fast as they grow. While the above is a safe way of increasing our stock of plants rapidly, I do not advise practicing this plan year after year, if one wishes to keep up the pedigree of his stock of plants. While it is undoubtedly true that the tendency of all varieties is to run out or deteriorate, we can say that we have grown the Crescent for twelve years and we cannot see but that they are as valuable as when we first fruited them. Indeed we sometimes think they improve. But we have always used plants from new beds for resetting. I am a firm advocate of using new bed plants. When old bed plants are spoken of, the small, inferior plants that strike root in the weeds and grass are meant. Of course plants from a cultivated old bed are better than such, but still they have not the vigor of new bed plants and should be used only when necessity requires it.

DO STRAWBERRIES RUN LAND?

If strawberries were grown on the same ground for years, they would impoverish it in one respect. The elements that make up the fruit would be extracted, and the land would be strawberry sick. If you plant another kind of crop such as does not require the same elements of fertility as the strawberry, that crop would be a good one, same as if no crop

of strawberries had been grown thereon. Certain crops remove certain kinds of fertility out of the soil, and unless an enormous amount of fertility comprising those elements are placed back, the land refuses to respond for those crops. It is therefore better to practice a rotation of crops. Set strawberries on a piece of soil one year, allow them to fruit and then put some other crop on that portion of the farm. Strawberries take very little fertility out of the soil. It is mainly in the form of potash, with less nitrogen and still a smaller amount of phosphoric acid. An ordinary yield of strawberries will have the following amount of fertility in the fruit: Of nitrogen, 16 lbs. at 18c. per lb., \$2.88; phosphoric acid, 5.4 lbs. at 12c., 65c; 19.7 lbs. potash at 6c., \$1.18. Amounting in all to \$4.71. This is for the fruit alone. The plants contain 88.5 lbs. nitrogen, at 18c.—\$17.93; 35.3 lbs. phosphoric acid, 12c.—\$4.23; 89.1 lbs. potash, at 6c.—\$5.35. Amounting in all to \$27.51.



BURT.

While this amount of fertility must be in the soil in order for it to produce a crop of strawberries, it does not stand to reason that this amount of fertility is actually taken out of the soil by a crop of strawberries. The crop of fruit is taken away and sold, but this is the smallest part of it. The vines are plowed un-

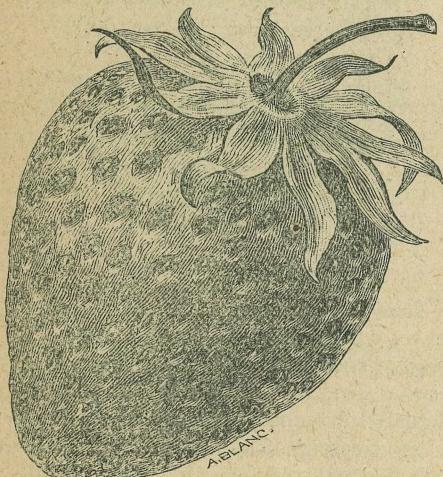
der after the crop of fruit is harvested, and go to fertilize the soil. The fertility that is lost by the decay of the foliage is surely made up by the added value given to the soil by the addition of the decayed vines. So we conclude that a crop of strawberries only removes about \$5.00 in fertility from each acre. Land is benefitted by growing strawberries upon it. The vines that are plowed under improve the mechanical condition, as also does the frequent cultivation and hoeing necessary to produce the crop. If mulch be left on, this is also added to the soil. Can anyone see where strawberries impoverish the soil?

A CHAPTER ON FERTILIZERS.

Since plants take out of the soil certain elements of fertility, it stands to reason that the soil will become impoverished with repeated croppings unless something in the shape of fertility is put back. Fertilizers are in two forms,—animal and concentrated or commercial fertilizers.

ANIMAL MANURES.

These are the fertilizers that give the best satisfaction. The voidings of ani-



LOVETT'S EARLY.

mals, they are valuable in proportion to the value of the food fed to the animal that makes them. Hogs are fed concentrated food such as meat and grain, hence the voidings of hogs are very much more valuable, bulk for bulk, than those from cows or horses. For the same reason are hen droppings more valuable than those from animals that eat coarse foods. The voidings of animals when fed different foods have been analyzed and found to be as follows:

Valuation of Fodders as Manures (per ton)—

Corn Meal	- - -	\$ 7 50
Wheat Bran	- - -	14 50
Middlings	- - -	10 70
Gluten Meal	- - -	17 00
Cotton Seed Meal	- - -	19 75
Linseed Meal	{ old process	21 75
	{ new process	24 00
Mixed Hay	- - -	5 50
Skim Milk	- - -	2 25
Corn Fodder	- - -	4 32
Corn Stover	- - -	4 80
Sugar Beets	- - -	1 15
Mangel-wurzel	- - -	1 10

It will be seen that bran, while it generally costs much less than corn meal is worth nearly twice as much as a fertilizer. If one stops to think how much he pays for the grain and how much it is worth after he feeds it to animals, he can readily see which grain pays best to buy. For instance, linseed meal costs \$25.00 per ton and the fertilizer that it makes is worth \$24.00. Thus the ton of linseed really costs the farmer only \$1.00 as a food. The above calculations are based on the fact that the fertilizers are carefully saved and not any wasted. Barn manure is valuable but barnyard manure that has stood under the eaves and leached out its valuable constituents is only half as valuable as manure that has been carefully husbanded and protected from the rains and sunshine.

The farmer should have some shed under which to put the manure. It may be necessary to build a separate building

for the purpose. It certainly don't pay to allow the manure to lose half of its value by leaching. Manure of a very coarse nature is often rendered worthless by heating. Ammonia, the most valuable part, is lost whenever the manure heats or is exposed to the rains and sunshine.

APPLYING MANURE.

The best time to apply manure is as soon as it is made unless you have a place to store it under shelter. In the winter it may be drawn out and spread where wanted. If put in piles much of its value is lost. It is not wise to spread manure in the spring or summer when the weather is warm. The most acceptable time to apply manure is in the fall right after harvest time. House the year's product and draw it out in the month of September if possible. Prof. Roberts is my authority and he is a good one. He argues that nature applies a coat of manure every fall in the shape of leaves and consequently this is the best time for man to apply manure. It has been found by experiment that manure put on in the fall is nearly all saved and goes to the enriching of the soil; while if put on in the spring or early summer, most of it goes into the air in the form of ammonia and is lost. When manure is housed it should be covered over with dry soil or land plaster to prevent the escape of ammonia. Every time it is forked over put on a new covering of absorbents. There is no tool so valuable on the farm as a manure spreader. It not only saves a much dreaded part of the work, but also puts the manure into such a fine state that it is readily taken up by the plants. I believe the results from applying manure with a spreader will be twice as good as when no spreader is used.

COMMERCIAL FERTILIZERS.

The advantages of commercial fertilizers over animal manures are these,—

they are more concentrated and therefore more easily applied. They contain no weed seeds and thus do not add more to the cost of caring for a crop. But they do not better the mechanical condition of the soil as do barn manures. This is the greatest objection against them.

The valuable constituents of all kinds of manures are ammonia, phosphoric acid, and potash; valued respectively at 18, 12 and 6 cts. per lb. If a bag of fertilizer analyzes 10 per cent. of potash, it has 10 lbs. of potash in every 100 lbs., worth 6c. per lb. or 60c. If it analyzes 10 per cent. phosphoric acid and 10 per cent. ammonia, it has 10 lbs. of each of those constituents in every 100 lbs. 100 lbs. of such a fertilizer will be worth as follows, 10 lbs. potash, 60 cts.; 10 lbs. phosphoric acid, \$1.20; 10 lbs. ammonia, \$1.80, or \$3.60 for the 100 lbs. Some people ask what makes up the other 70 lbs. of the 100? Why have a lot of worthless matter that adds nothing but bulk to the soil? The fertilizers that we buy are not chemically pure for various reasons. They would not be so easily applied if more concentrated, and the materials that supply these elements of fertility cannot be separated from them without great loss. If you buy a cow for beef you must get along with the beef much that is of no value practically, such as the head, tail, hoofs and horns. Yet a cow without these would not be a cow. It is so in buying commercial fertilizers; in order to get the valuable parts we must take that which is of no value except as it acts as a carrier for the valuable portions.

THE SOURCE OF THE DIFFERENT ELEMENTS.

Ammonia is derived from Nitrate of Soda, Sulphate of Ammonia, Guano, Dried Blood, Meat Scrap, Tankage, Azotin, Dried Fish, Fish Scrap, Horn Dust, Wool-waste, Cotton Seed Meal, Castor Bean Pomace.

PHOSPHORIC ACID is found as Acid

FARMER ON THE STRAWBERRY.

Phosphate, Phosphatic-Guano, Ground Bone, Bone Meal, Dissolved Bone, Bone Ash, Bone Black, Rock Phosphate, Basic Iron Slag.

POTASH is found in Muriate of Potash, Sulphate of Potash, Kainite, Nitrate of Potash, wood ashes, cotton-seed hull ashes and tobacco stems.

GREEN MANURES.

Experiments have demonstrated that certain green crops, when plowed under, serve to enrich the soil. Clover and peas are the most valuable. Clover sends its roots down deep into the soil and brings to the surface much fertility that could not otherwise be secured. The leaves of both clover and peas gather fertility from the atmosphere, and when plowed under, serve to enrich the soil.

Peas may be plowed under when in blossom. Clover should be sown in the spring and plowed under when the second crop of the next year is in full bloom. Green crops, when plowed under, tend to warm and liven up the soils of a cold nature. Fruit growers who do not keep animals will find clover their greatest friend in restoring the fertility of their soil.

THE BOY ON THE FARM.

Farmers are puzzled how to keep their boys on the farm. The attractions of the city are too much for them. Rich farmers, what few there are, are generally too stingy to give the boy a share of the profits and those who have the desire are too poor to give them a satisfactory share. Ordinary farm crops have not paid for the past few years. There is hardly enough left after paying for hired men to pay the taxes and insurance.

The restlessness of farmers' sons and their desire to leave the farms for the cities is deplorable, and the future of those who have sense enough to stay on the farms is very encouraging, because of less competition. I think the

main cause for this unrest is a wrong system of education. The story papers that the boy gets hold of and reads from infancy, even the very best of them are full of idle tales that lure them away from the farm. The teachers at the common schools, as well as at the High Schools and Academies, are not in sympathy with farming as a business. Very little attention is paid to portions of Botany, Chemistry, etc., that pertain to agriculture. The boy goes through school and comes out with tastes strongly tending toward some other kind of business. There are other reasons why boys do not stick to the farm. I always had a great love for fruit-growing, yet I do not think I would have remained on the farm had someone else pocketed what money I made. Here is the secret. If you wish to keep the boy on the farm give him a few acres to cultivate and manage himself. Let him handle the money. It is a great satisfaction to handle money, even if you do not spend it all. If a boy gets a new idea by reading the agricultural papers, he is not allowed to carry it out because it may conflict with some of the fossil notions of the father. One of Oswego's best lawyers told me this drove him from the farm. He used to read the Rural New Yorker and got many new ideas which he wished to carry out; but was prevented by the ridiculing of his father. Discouraged at last, he left the farm. He is only one among thousands.

WHAT VARIETIES SHALL WE PLANT?

CLIMATE has much to do with the behavior of a variety of strawberries. New varieties are liable to do better in the locality where they originate or in some place of similar climate. The Wilson originated in New York State and does its best there. Further south it loses its distinctive characteristics, becomes soft-

er and poor colored. On the other hand the Neunan has been the best berry around Charleston, S. C., for years. At the North it is worthless. This rule has exceptions, however, for some varieties, notably so the Crescent and Warfield, are a success the country over.

SOIL has more influence on the behavior of varieties than has the climate. Those varieties of the Crescent type, such as Warfield, Eureka and Daisy, do best on a soil made up mostly of sand. Slow growers like Wilson, Babach, Burt, etc., do best on a soil inclining to clay. Dry gravel and stony upland produce good crops of the varieties of the Crescent class. Loam, sand and clay when mixed in right proportions is the ideal soil and will produce good crops of any variety.

TREATMENT of plants after the right variety for the soil has been selected has much to do with success in strawberry culture. Some varieties make double the growth that others do. These should be set farther apart in the rows. For instance, Wilsons when set alongside Crescents only make about one-fourth the growth that the Crescents do. Therefore they should be set four times thicker in the row. Some varieties require considerable pains taken with the runners else they won't root readily. This is true with Crawford. Most varieties of strawberries require lots of fertilizers. The Wilson and Babach will stand almost any amount, but the Cloud and Michels Early, if manured highly will run to vines and produce very small fruit and not much of it. On ordinary soil with no manure applied these varieties produce abundantly.

THE QUESTION OF HIRED HELP.

Of all the problems that confront the person who is to engage in the culture of strawberries, there is none so hard to solve as the problem of how to obtain

and properly manage the hired help. If one can do all the work himself, the profits are sure to be large; but if he has to depend on hiring others, the profits are doubtful. It is a deplorable fact that most of the men who work on farms now are poor sticks. Our fathers used to work out for years until they got something ahead before they bought a farm for themselves; but now most of the young men who have any ambition towards farming rent or buy farms just as soon as they are old enough to do any hard work. The great majority of farmers' sons drift into other occupations or into other climes, and their fathers are left to till the soil as best they may with the aid of the scum of the cities and towns. This state of things is all wrong. Any young man can make as much money and certainly be as independent by staying on the farm, provided he gives the same attention to farming that he would to some other business. No one can make a success in any business if they are building air castles in some other line. We must respect and like our work if we would make it a success. No one can properly hoe a strawberry plant, much less market the fruit, who is ashamed of what he is doing, and is only waiting to get a situation in a lawyer's office or behind the counter of a store. It will not be generally believed, but the young man who is without capital can get along better if he works for wages till he has something ahead and then buys his farm, instead of running in debt for a farm at the outset. That is, the man who works out for a period of years, with the same economy, will save more money than he who buys or rents farms for the same period. Of course there is a certain satisfaction in having the appearance of owning a nice farm; but there is also a great satisfaction, we will say greater, in knowing that you owe nobody.

I have had all kinds of help, the very best and the poorest. I have come to the conclusion that where it pays to hire help, it pays to hire good help. I mean by good help, those men who are both intelligent and industrious. Men that are good teamsters, or "run to horses," are not generally valuable men for the berry business. They are all horse. In order to be skillful in this work, the man must have some taste for gardening. If I were to select men according to nationality, I would pick out the Irishman and Dutchman every time. I cannot teach the Englishman anything. They know it all, or think they do. An American or Irishman is always ready to catch on to any new idea; but the Englishman scoffs at anything that was not handed down to him from his forefathers.

The berry business requires quite an amount of skill. Men who work at it should be constantly shown how to do the work and will have to work at the business for several years before they become adepts at it. Therefore it is a good plan to get boys and bring them up in the business. I endeavor to secure boys about 13 or 14 years old, those who come from good families and are liable to stay with me for a number of years. Boys who have lost their parents are liable to stay by longest. I show them all the details of the business, all that I know myself, and in two or three years they make the very best help. I think that a boy 16 or 17 years old, if he has a liking for the work, will make a better workman for the berry grower than a matured person. The amount of food such a boy will get away with is simply enormous. By increasing the boy's salary as he becomes more valuable to you, he can be kept for several years, may be for a lifetime. My greatest trouble in hiring boys has not been with the boys themselves but with their parents or guardians. You can do all you can to interest

a boy and if someone is constantly enticing him away he will not do well for you while he stays. I think that people have too much to do with other people's hired help anyway. They are constantly setting them up or making them believe that they are not well used or something to that effect.

For the man who keeps but one hired hand, it may be cheaper to board him in the family and hire by the month. But where a lot of employes are kept the most economical and satisfactory way is to have houses for them to live in and hire by the day, allowing them to board themselves. Hired men who board in the family do not take into consideration the free board and washing they get but want nearly as much wages as those who board themselves. Men will work on the railroad for \$1.00 per day and board themselves, but the same man wants \$1.00 and board when he goes out on a farm to work. We can hire men for \$26.00 a month when they board themselves and work right along. If we boarded them they would have to have \$20.00. Is not board and washing worth more than \$6.00 per month?

We generally hire men by the season if possible. Being with us for a long time they know the way things are running and can take hold better. They also should have more pride as to how things look around than men who are only hired for a few days. If things are not up in shape it reflects on them the same as on the proprietor himself. I am hoping to so shape my business that I can hire men the year around. This is better for them and for the person who hires them also. J. S. Woodward says that he does not wonder at the poor laborers farmers have to take up with when he thinks how they are hired for only the summer and have to loaf or seek some other work the rest of the year. It will be better for boys to go to school

through the winter and work for their board doing chores, than to seek other employment.

Of course if the men are hired by the day they must be paid every day. In hiring month hands we endeavor to make a bargain so the man has something coming to him when fall comes. Most men will spend all they earn as fast as they get it. If a man has something coming to him all the while, he will try harder to please than as if he spent all he earned every Saturday night. When hiring single men or boys, we keep back half till their time is out in the fall.

Our rule in regard to hours is the following: The men who board with us get up at 5 o'clock and do chores till breakfast time, about six. At seven the teams and men are in the fields for the day's work. We stop work at 12 o'clock and spend an hour for dinner and nooning. In the afternoon we work from 1 to 6, when we eat supper. After supper the evening chores are done, when the men are free to play games or read the papers. The men generally go to town twice during the week, always Saturday night. Men that spend every other night off attending a dance or to town are of no use to us. We insist that the boys stay at home most every night during the week. If off a night they are sure to do something out of the ordinary the next day, cut up plants or break tools.

For the boy who wishes to improve in health and mind, there is no better place to work than on the farm. He mingles with intelligent people who are always showing him something that is new to him. Of course he has not the opportunity to attend so many dances or other places that tend to demoralize him. When boys grow up in shops where hundreds of men and boys are employed, they have no chance to develop individuality. They make a certain part of the article they work on and it passes on to the next

workman who does his part. Such a boy becomes a machine, unable as he grows older to do anything else. He has really learned no trade; he is only a part of a great machine. When he gets old he becomes worthless to his employer and is turned off, unable, because of his constant working at one thing, to do anything else. He has spent his wages as fast or faster than he earned them, and of course, ends his career in the poor-house. Such is the fate of many of the employees of the large mills that employ so many men.

VARIETIES OF STRAWBERRIES.

The following description of varieties is taken from the New York State Agricultural Experiment Station Bulletin of 1890, compiled by C. E. Hunn. The Station is located at Geneva in the western part of the State. The soil is a rich, heavy clay loam.

DESCRIPTION OF VARIETIES.

Belmont, H.—This is a very showy berry when fully ripe. Typical fruits oblong with thick neck, but bears a large number of coxcombed fruits. With good culture it will yield an average crop. The berries are firm and of very fine flavor. Season late.

Bomba, H.—A very vigorous plant, bearing a large crop of above the medium sized fruits. Of a very dark scarlet color. The flesh of this berry is of high color and distinctly veined. Season early.

Bidwell, H.—This has been a very profitable variety in some sections, but is not reliable enough for general use. Fruits of medium size, soft and not of the best quality. Season early.

Burt's Seadling, H.—This is claimed to be Captain Jack and there seems to be no difference in the appearance, habit of growth or productiveness. If there is a difference, it is not enough to matter which you have. The season is from

medium to late. Berries firm, good size through season. One of the most productive varieties we have.

Bubach, P.—A rank growing late variety. Fruits average large, bright scarlet. A very promising variety, but quite soft.

Charles Downing, H.—One of the older varieties; still grown extensively in some sections, it is not very productive here but is of value for growing with pistillate varieties to furnish pollen. Season from early to late.

Crawford, H.—A variety of vigorous growth, free from blight and multiplies by runners very rapidly. An abundant yielder of showy berries of more than average size; very firm and of first quality. A good late market variety.

Crescent, P.—A variety probably grown more extensively than any other through the north on account of its earliness, hardness and productiveness. The fruits are of good size and showy, but run small towards the end of the season. The quality is inferior and if the market is at all critical they will not sell well.

Cloud, P.—Of rank growth and great multiplier of runners. A handsome berry of large size, quite firm, and of a brisk, tart flavor. Productive, season medium; is thought highly of in the southern states.

Daisy, P.—This is considered an improvement on the Crescent being as heavy a cropper; the fruits are firmer, holding large through long picking season, not affected by wet weather. A profitable market variety.

Enhance, H.—A late berry of large size. Firm and productive; has proved one of the best late varieties we have. Quality of the best, it will respond to high culture in a profitable way.

Farnsworth, H.—Not quite as productive this season as last. A great many plants in stool row killed out, still I consider it one of the best kitchen garden

varieties we have. Too soft for shipping but of exquisite flavor and fairly productive of good sized berries. Season medium.

Felton, H.—Of very rank growth; somewhat of Sharpless type; a prolific bearer. Fruits large through picking season, obtuse conic, dark glossy scarlet, firm and of the best flavor. I should say this will become a favorite. Season late.

Gandy, H.—This is a late berry of rank growth. Fruits hold over average size through season. A very handsome berry, firm and of good flavor. I am of the opinion this will prove of value. Season late.

Haverland, P.—Plants of vigorous growth, with distinct leafage, free from blight. Fruits in large clusters so heavy as to lay on the ground, and should be mulched. Berries long, of a showy scarlet and good size, too soft for a shipping berry, but a first class variety for home use or near market. Season early.

Hoffman, H.—Of vigorous growth, makes many runners. Fruits large and showy, firm, sub-acid. A good shipping berry. Season early.

Ivanhoe, H.—Of vigorous growth, produces runners freely and is free from blight; the fruits which are produced in abundance are obtuse conical, bright showy scarlet, from large to very large, firm and of the best quality. I consider it a fine garden berry. Season early.

Lida, P.—This is a very sturdy growing variety; enormously productive, of large dark red fruits. The fruits are almost without flavor and if left to become fully ripe too soft to pick, rotting very quickly after rains. Season medium.

Logan, H.—A vigorous growing variety and should be mulched; fruits usually large, but held on short, weak fruit stalks. They are of a clear red color with a handsome gloss and yellow seeds, making it a very showy market berry. Season medium.

Lady Rusk, H.—This variety was sent out for testing last year. Its chief claim was its shipping qualities. One season's experience with it shows it to be a very promising variety for keeping or shipping; it is a very dark berry of average size and yield. I do not think it will supplant any of the first class varieties now in market. Season medium.

Long John, H.—A local variety from Niagara Co., this State. Rather strong growth; fruits long, dark red, on short fruit stalks, small and of only average production. Season medium.

Leonard's Seedling, H.—This variety proved to be the earliest variety to give a good picking; growth of plant very vigorous, with large leafage and making many runners. Fruit conical, dark glossy scarlet. Average large, firm and of good quality. I think this will prove a profitable early variety.

Mt. Vernon, H.—This variety was reported as not being productive during the season of '89, but this year it has done finely, standing third in yield from matted rows of all the varieties under test. The fruits are obtuse conical, bright scarlet, of medium size, soft but of fine quality, season late.

Miami, P.—This is a late variety of merit; it makes a good growth and any quantity of runners and is quite productive. Berries over average size, oblong and dark showy scarlet, soft but good quality.

May King, H.—Of vigorous growth, makes runners freely, free from rust, fruits ripen early and continue through long season; medium large and firm, quality of the best. I consider this one of the best table berries, it will be an acquisition to any home garden.

Monmouth, H.—Of but moderate growth, not very productive. Fruits irregular, flattened similarly to Sharpless, usually large, firm and of a very pleasant tart; season early.

Augurs No. 70, H.—I believe this is to be placed on the market this fall as Middlefield. The growth of plant is all that one could wish; foliage dark green free from rust; making runners freely; was second in productiveness this year. Fruits conical, flattened on large specimens, very showy, glossy scarlet, firm, holding large through picking; season from medium to late. I consider this the best one of the Jersey Queen type.

New Dominion, H.—Growth vigorous; season late; fairly productive. Fruits conical and a showy scarlet, hold large through picking, soft but fair quality.

Stayman's No. 1, P.—This is a Kansas variety of vigorous growth with long stiff fruit stalks; bears an enormous crop of more than average sized fruits of conical shape and pleasing scarlet color; hold good size through long picking; season from early to late; firm enough to ship and of fine flavor; fruiting season's notes say "ground literally covered." I consider this the best variety among one year tested plants grown on the Station grounds; it excelled all others in stool row by one quarter.

Stayman's No. 2, P.—A good healthy growing variety; one day ahead of the No. 1 in picking, but not nearly as productive, and softer.

Smith's 77, H.—This is also a Kansas production. Plants of vigorous growth. At the time the flower buds appeared it gave promise of being a grand acquisition, but set too many fruits to perfect. In habit of growth and inability to mature crop it is identical with James Vick, but has larger fruits, flavor very tart. Season late.

Sharpless, P.—A well-known variety, and very satisfactory either for market or private garden. Fruits unusually large, tips usually green when fruits are ripe enough to pick.

Viola.—Of rank growth, large leaves;

fruits unusually large, obtuse, conical, flattened on end; of very firm texture; and fine flavor; color, fine deep scarlet. Season medium.

Windsor Chief.—Growth very vigorous; an abundant yielder of round dark glossy scarlet fruits of large size; firm and has a pleasant acid flavor. Season early.

Wilson.—This good old variety has about run out in this section, and is only profitable where care is taken to select runners from plants that have not borne a crop of fruit, it never has been excelled for shipping or canning, and for a canning berry for family use, should be grown.

Woodruff No. 1, P..—Of thrifty growth, very productive; fruits very much misshapen, with hard core; of no special merit.

Warfield, Imp..—This does not do well here, the plants make a very poor growth and fail to produce even a medium crop. Fruits conical, showy scarlet and soft; quality fair. Season medium.

The following is our own report published in the same bulletin. We will say little or nothing about the varieties of recent origin that have not been thoroughly tested. Our soil is a stony upland. Varieties of the Crescent type do best with us. Note how different varieties vary in value at the two places.

Warfield No. 2, P..—This berry ripened more marketable fruits than any other on our grounds. It ripens with Crescent, is more productive and holds its size better to the close of the season. Like the Wilson it should be picked for market when it first turns.

Bubach, P..—With us the Bubach is a most valuable variety; it ripens mid-season and is very productive, the most productive large berry save Eureka. The color is rather light but its immense size secures for it the highest price.

Eureka, P..—For vigor of plant and beauty of fruit the Eureka is without a peer. It will spread the width of fifteen feet in one season; it ripened latest of all, the first picking, June 30th. In shape somewhat like Sharpless; bright red color, very glossy and attractive; berries firm and solid to the core.

Haverland, P..—This variety produced the largest quantity of fruit but a large per centage was inferior; is too watery for shipment but for a local market and home use cannot be excelled. Quality fine; it blossoms earliest of all but did not ripen till mid-season.

Daisy, P., Pearl, H..—These two varieties should always go together as they ripen at the same time, are of the same color and both are regular. The Daisy is larger than the Crescent and as productive. Pearl shaped like a cone, very firm.

Jersey Queen, P..—This was a surprise to us, as from reports we did not expect anything from it. The fruit was large, attractive, and quite productive, valuable only for fancy near market.

Stayman's No. 1, P..—Never were we so disappointed in a strawberry as with this. The plants are fine growers and give great promise. The fruit is very small, unattractive and of very poor flavor. Resembles Glendale but not nearly as large or good.

Wilson, H..—In a few places in Oswego county the Wilson still does well but it has not done well with me.

Viola, H..—The plants are free growers, somewhat like the Jessie in appearance; fruits quite large but poor color, unattractive, white tipped; are exceedingly poor in flavor having a musky, disagreeable odor.

Jewell, P..—Plants blossomed profusely and were loaded down with fruits; the plants blighted very badly just as the fruits began to ripen and the berries dried up in the sun.

Mammoth, H.—Produced a few large specimens and many small ones; a slow grower.

Cumberland, H.—This has never done well. Fruits regular in shape, large and fine flavor; unproductive.

Crescent, P.—This has never failed to give a good crop; sells for the same as Wilson and is fully twice as productive.

Crystal City, H.—Extra early; fruits small, few in number, ripening together, is of value only as a fertilizer of some very early pistillate variety.

Hampden, P.—Resembles Manchester and has the same failing of rusting.

Gypsy, P.—Plants of fine growth with healthy foliage; last year fruits resembled Wilson but larger. This year on account of the wet weather they did not fertilize well and the fruits were small and hard, it seems to be a clear Pistilate. I have great faith in this variety.

Cloud, P.—On rich soil this seems to exhaust itself in making runners but I have seen it on moist gravelly loam between blackberries where the growth of runners was prodigious and the crop of fruit very large; the berries are of a good color and very firm; one of the best shipping varieties we know.

Long John, H.—An entirely distinct berry, long, and resembles blackberry. Fruits fair size, dark color and firm. Plants are productive.

Burts, H.—The Burt is the best berry we know of for wet soils or rainy weather; it will stand more grief than any we know of, berries firm enough to be left on vines several days; fruits light color; a good shipping berry. Plants rugged and free runners.

Pineapple, H.—This variety is a good grower with fine foliage; is easily affected by unfavorable weather when in blossom. Soft, of poor color and good only for home use.

Monmouth, H.—Of dwarfish growth and not very vigorous, ripens extra

early, fruits similar in shape and firmness to Wilson but large and of better color.

Logan, H.—In value this ranks with Monmouth, dwarfish, fair growth; productive, fruits round, good flavor, bright color.

Gandy, H.—This is regular in shape, firm, and does not get soft towards the last; only moderately productive and valuable only for home use and a market that uses late fruits.

Jessie, H.—Does fairly well, but only about half as productive as Bubach; we consider it the best flavored of all and a valuable berry for fancy trade.

Sharpless, H.—You cannot tell the plants from Jessie; not as productive. Jessie is a great improvement over Sharpless with us.

Atlantic, H.—A late berry, beautiful, firm, glossy and extra large; as yet yields poorly.

Hoffman, H.—Produced a lot of small inferior plants; the fruit was an entire failure although the plants blossomed well.

Crawford, H.—Plants rather slow growers and require good culture; fruit similar in color to Eureka; ripens late.



SMALL FRUITS.

I have of my own growing 70 varieties of Strawberries. Everything new and rare, as well as standards. This year try MICHELS EARLY for the earliest. EUREKA for the longest season, LADY RUSK for the best keeper. STAYMAN'S No. 1 for the most productive. ANNIE FOREST for the largest and best flavored. TIPPECANOE for the greatest novelty. RACSTER, GREAT PACIFIC and MRS. CLEVELAND for coming Strawberries. WESTBROOK as a rival to MICHEL'S EARLY. EDGAR QUEEN for great beauty. OREGON everbearing for a supply all summer. Try WARFIELD, HAYERLAND, GANDY and BUBACH for standards. CUMBERLAND, JESSIE and BURT for fertilizers. Our stock of the above is the finest in America, and we will fill orders from 6 plants to 50,000, and do it promptly. In Raspberries, I keep everything of value. Try the PALMER for the best. For Blackberries, try SWEET HAMBURG. The LINCOLN is as hardy as an Elder. Everything in Grapes, 70 varieties. Descriptive Catalogue and report on Strawberries free. Address, D. BRANDT, Bremen, Ohio, Box 59, H.

Always mention Farmer on the Strawberry in writing.

JNO. R. PARRY.

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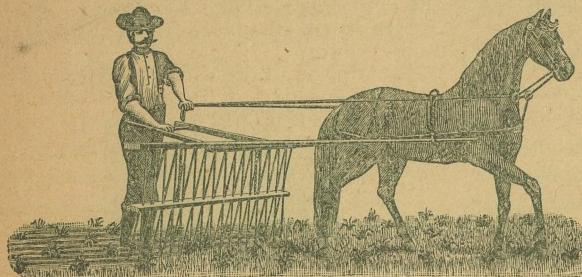
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Is not a Seed Catalogue, but a magnificent volume containing 270 ELEGANT COLORED PLATES! This magnificent collection of FLORAL LITHOGRAPHS has Cost Over \$2,500, and has heretofore sold at Fifty Cents per copy alone, but to introduce it and my seeds, I will now for a limited time offer to send postpaid by mail, on receipt of 75 cents; (postal note, silver or postage stamps) one copy of this Elegant Floral Album and 15 packets of our choicest and most popular Flower Seeds, viz., one each of choicest mixed Asters, Balsams, Pansies, Verbena, Petunia, Zinnia, Poppy, Accroclitnum or Strawflower, Drummond Phlox, Sweet Peas, Scabiosa, Mignonette, &c. The catalogue price of these seeds alone is \$1.00, yet for introduction I will mail them all and a copy of the Beautiful Album for 75 cents. I want Agents and will pay them well to take orders among their friends for this great combination. My seed catalogue will be sent Free with each order. Address

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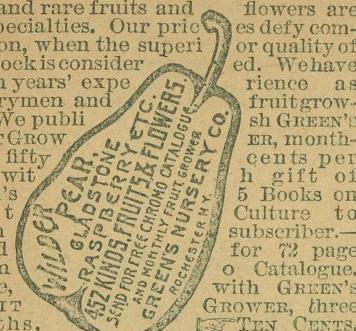
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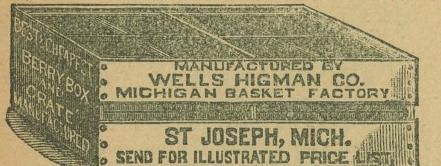
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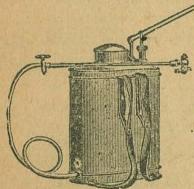
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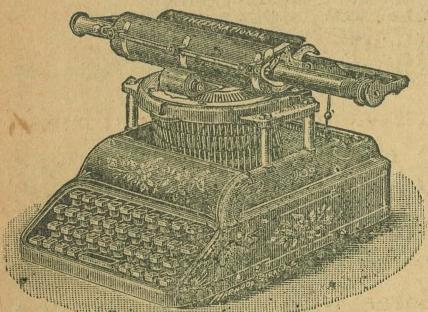


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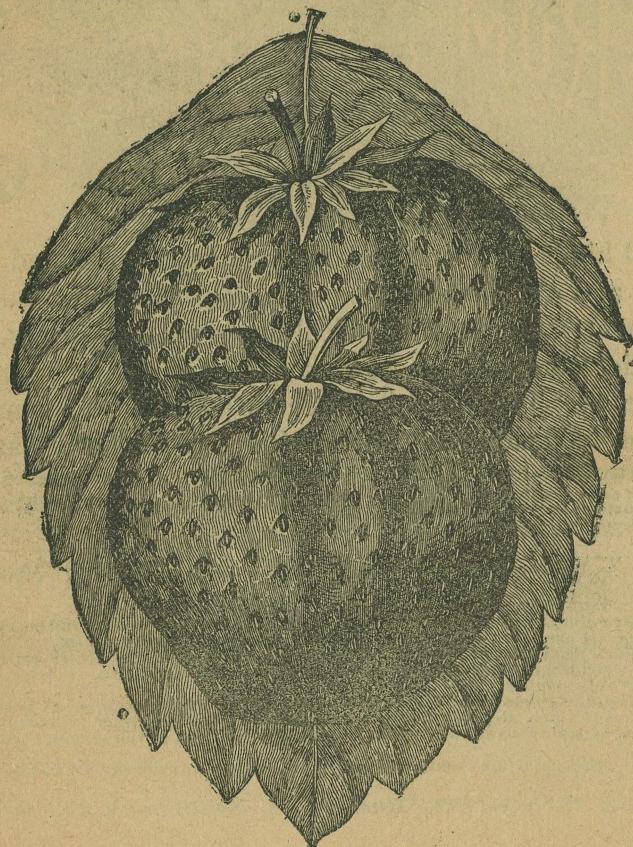
From the Morning Oregonian of Jan. 6, 1891.—**LAST OF THE STRAWBERRIES.**—A basket of strawberries grown in the open air, was left at the *Oregonian* office yesterday with compliments of Seth Winquist. One is puzzled to know whether to call them the "last of the season," or the "first of the season."

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